STANLEY

March 30, 2004

Elizabeth Butler, Remediation Project Manager
Emergency and Remedial Response Division
U.S. Environmental Protection Agency
290 Broadway – 19th floor
New York, New York 10007-1866

Re: 104E Information Request (42 USC 9601-9675)
Lower Passaic River Study Area
Former Stanley Works Facility – 140 Chapel Street, Newark, NJ

Dear Ms. Butler:

The Stanley Works hereby responds to your February 23, 2004 information request on the above-referenced project. Stanley received approval on March 16, 2004 from Kedari Reddy of the USEPA to extend the date of this response until March 31, 2004. Our responses are prepared in the order presented in Attachment B of the Request for Information.

Stanley was issued Directive No. 1 by the NJDEP in the fall of 2003. As a result of Stanley's "good faith" response to this Directive, NJDEP is actively considering withdrawing the Directive. Specifically, several years prior to the issuance of the Directive, Stanley undertook a Baseline Ecological Evaluation ("BEE") as part of its ISRA closure activities at the subject site. The BEE explored potential ecological receptors, contaminants of ecological concern and contaminant pathways. The BEE found no exposure pathways between the site and the Lower Passaic River and no ecological risk posed by the site to ecological resources or environmentally sensitive areas. By letter dated April 8, 2000, (attached to Stanley's enclosed response as Exhibit B) NJDEP stated that it concurred with and approved Stanley's conclusions in the BEE. Stanley requests that EPA take no further action until NJDEP determines whether it will withdraw the Directive.

Please do not hesitate to contact me at (860) 827-5414 if you have any questions.

Sincerely,

Debi J. Geyer

Debi J. Geyer
EHS Manager, Corporate Environmental Affairs

Enclosures

cc: Kedari Reddy, Assistant Regional Counsel, US EPA
Peter Herzberg, Pitney Hardin
Ted Morris, Stanley

877630001

Attachment B

REQUEST FOR INFORMATION

The United States Environmental Protection Agency ("EPA") is investigating the release of hazardous substances into the Lower Passaic River. Please provide the information requested below, including copies of all available documentation that supports your answers.

1) How long has your company operated at the facility? If your company no longer operates at this facility, during what years did your company operate at the facility?

   Stanley Tools, a division of the Stanley Works, manufactured hand tools at 140 Chapel Street, Newark, NJ from 1875 through 1985 when the facility was closed.

2)
   a) Does your company have or has it in the past had a permit or permits issued pursuant to the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §6901 et seq.? If "yes", please provide the years that your company held such a permit and it's EPA Identification Number.

      The Stanley location was noted as having EPA Identification Number NJD002454049.

   b) Does your company have or has it in the past had a permit or permits issued pursuant to the Federal Water Pollution Control Act, 33 U.S.C. §1251, et seq.? If "yes", please provide the years that your company held such a permit and it's Identification Number.

      The Stanley location did not have any permits issued from the Federal Water Pollution Control Act.

3) Did your company receive, utilize, manufacture, discharge, release, store or dispose of any materials containing the following substances:

	Yes		No
2,3,7,8 tetrachlorodibenzo-p-dioxin			
2,4-Dichlorophenoxy acetic acid (2,4-D)			
2,4,5-Trichlorophenoxy acetic acid (2,4,5-T)			
2,4,5-Trichlorophenol (2,4,5-TCP) or other dioxin compounds			
Dichlorodiphenyl-trichloroethate (DDT)			
Benzene			
Ethyl benzene			
Total Petroleum Hydrocarbons (TPEH)	X		

Polyaromatic Hydrocarbons (PAH), if Yes please list specific compounds		
Toluene		
Xylene		
PCB's		
Antimony		
Argon	X	
Arsenic		
Cadmium		
	Yes	**No**
Chlorine		
Chromium		
Copper		
Iron		
Lead	X	
Mercury		
Nickel		
Silver		
Sulfur		
Titanium		
Vanadium		
Zinc		
Cyanide		
Acetone		
Acetylene	X	
Acetylene tetrabromide		
2 butoxy ethanol		
Bis (2-ethylhexyl) phthalate		
Chlorodifluoromethane		
Chloropentafluoromethane		
Chlorotrifluoromethane		
Dibutyl phthalate		
Dichlorodifluoromethane		
Naphtha	X	
Silver nitrate		
Sodium bisulfide		
Sodium hydroxide		
Sodium nitrate		
Tungsten		

4)

a) Provide a description of the manufacturing processes for which all hazardous substances, including, but not limited to, the substances listed in response to item (3), were a product or by-product.

Please see Appendix 2 of the Site Evaluation Summary dated May 24, 1985 (attached hereto as Exhibit A).

b). During what parts of the manufacturing processes identified in the response to items (4)(a) above, were hazardous substances, including, but not limited to, the substances listed in response to item (3), generated?

As described and previously submitted to the NJDEP Division of Waste Management on May 24, 1985 in Stanley's Site Evaluation Submission (SES):

Lead: (Lead contained as a component within steel). Fifteen foot lengths of steel "*are cut to length within the facility depending on the product manufactured. This is a dry operation and does not utilize any chemicals. After the shearing process, work in progress is sent to a shot cleaning process to remove surface oxidation. The shot cleaning process involves tumbling part on part in an atmosphere of high velocity steel shot. Bag house filters located in the alleyway between Buildings 51 and 21, as well as along the east wall of Building 20 are used to collect any of the abrasive dust or particulate matter that results from this process. The collected material is handled as a non-hazardous solid waste and is disposed of in an ID 26 sanitary landfill.*"

Also noted in the SES, "until 1977 lead pots were used in the manufacturing process" but discontinued after that time due to Stanley's improvements in the methods used to manufacture product.

Waste Oil: (TPEH contained in Fuel Oil No. 2, quench oils, hydraulic oils). As part of the Stanley heat treating operation " *Three of the heat treating furnaces are gas-fired and operate under nitrogen atmosphere utilizing an internal oil quench. The quench oil is Houghton Quench K. Once per year, the quench oil is pumped from the tank into 55-gallon drums to allow for cleaning of the tank. If the oil is deemed acceptable it is returned to the quench tank when the cleaning process is completed. Should the oil be contaminated with water and thereby unsuitable for reuse, the oil would be ticketed with internal hazardous waste labels and moved to Building 24 for storage*".

Waste Paint: (no clear description of the components present in the paints). Stanley painting operations were "*dip operations, paint loss is minimal. Whatever paint might drip off the parts is collected on drip trays and directed back into the dip tank". "Semi-annually, paint is pumped from the dip tank and placed in 55-gallon drums to allow for cleaning of the tank. The cleaning process is basically to remove product that has fallen into the tank during normal operations. Should a color be discontinued from use, or should the paint become contaminated, the waste paint drums would be labeled with an internal hazardous waste label and placed in Building 24 for storage*".

<u>Waste Mineral Spirits</u>: **(used in manufacturing process). *"Products were transferred to a conveyorized finishing machine."* To remove oil and grease that the products may have come in contact with the parts are dipped through a 20 –gallon tank. *"Replenishment of the tank is done regularly. Once per month the tank is drained into a 55-gallon drum. The drum is ticketed with an internal hazardous waste label. Full drums are moved to the basement of Building 24 for storage."***

<u>Waste Solvent Based Lacquer</u>: **(used in manufacturing process). Parts are dipped through this 20-gallon tank as a final finishing operation which is a clear lacquer coating. *"Once per month this tank is drained to a 55-gallon drum. The drum is ticketed with an internal hazardous waste label. Full drums are stored in the basement of Building 24".***

<u>Argon and Acetylene</u>: **(gases used in the manufacturing process). These gases were noted as *"chemicals used in the manufacturing process"*. There are no records to clarify whether these gases were a product or by-product.**

<u>Naphtha</u>: **(as a component of an adhesive). *"The coated handles are then pressed into the hammer head. The lower handle body is dipped into a general purpose nitrile rubber adhesive supplied by BF Goodrich, A-851-B. The adhesive is allowed to air dry. The adhesive is then activated by a solution containing 60% methyl Ethyl Ketone and 40% Naphtha. The activation solution is introduced into the rubber hand grip to lightly coat the inside surface. Residual activation solution is removed from the grip and returned to a holding container for reuse. No waste is generated during this operation."***

i. Describe the chemical composition of these hazardous substances.

Information with respect to the chemical composition of hazardous substances is not available at this time.

ii. For each process, what amount of hazardous substances were generated per volume of finished product?

Information with respect to the amount of hazardous substances generated per volume of finished product is not available at this time.

iii. Were these hazardous substances combined with wastes from other processes? If so, wastes from what processes?

Information with respect to whether hazardous substances were combined is not available at this time.

5) Describe the methods of collection, storage, treatment and disposal of all hazardous substances, including, but not limited to, the substances listed in response to item (3) and (4). Include information on the following:

a) Identify all persons who arranged for and managed the processing, treatment, storage and disposal of hazardous substances.

The facility was closed in 1985. At this time there is no available information on who arranged for and managed the processing, treatment, storage and disposal of hazardous substances.

b) If hazardous substances were taken off-site by a hauler or transporter, provide the names and addresses of the waste haulers and the disposal site locations.

Waste oil was noted in the SES as being *"hauled by Hitchcock Oil Pollution Systems of Connecticut. The shipments were manifested and listed as New Jersey waste number X726. Hitchcock is an approved oil reclaimer in Connecticut".*

Information not available at this time with respect to the other waste streams noted above.

c) Describe all storage practices employed by your company with respect to all hazardous substances from the time operations commenced until the present. Include all on-site and off-site storage activities.

i. If drums were stored outside, were the drums stored on the ground or were they stored on areas that had been paved with asphalt or concrete? Please provide a complete description of these storage areas.

It was standard procedure to containerize hazardous substances at the point of generation until the 55-gallon storage containers were full. When full, the 55-gallon containers were moved to the basement of Building 24 for storage until shipment off-site.

ii. When drums were stored outside, were empty drums segregated from full drums?

It was standard procedure to containerize hazardous substances at the point of generation until the 55-gallon storage containers were full. When full, the 55-gallon containers were moved to the basement of Building 24 for storage until shipment off-site.

d) What processes do you use to treat your waste? What do you do with the waste after it is treated?

Waste treatment was not performed on site.

6)

a) For process waste waters generated at the facility which contained any hazardous substances, including, but not limited to, the substances listed in response to item (3) and (4):

i. Where was the waste water discharged and during what years?

ii. Was the waste water discharged into a sanitary sewer and if so, during what years?

iii. Was the waste water treated before being discharged to the sanitary sewer and if so, how? Please be specific.

iv. If the waste waters were not discharged to the sanitary sewer, where were they disposed and during what years?

v. Please provide the results of any analyses performed on any waste process streams generated at the facility.

i – v) The Stanley facility discharged its wastewater to the Passaic Valley Sewer Commission under permit No. 20402922 most recently dated February 4, 1983 (expiration February 4, 1987). At this time, Stanley has no other information concerning wastewater disposal.

b) For floor drains or other disposal drains at the facility:

i. Did the drains connect to a sanitary sewer and if so, during what years?

ii. If the floor drains or other disposal drains at the facility were not discharged to the sanitary sewer, where did they discharge and during what years?

i – ii. Information not available at this time.

c)

i. Did any storm sewers, catch basins or lagoons exist at any time at the facility and if so, during what years?

ii. If catch basins or lagoons existed, were they lined or un-lined?

iii. What was stored in the lagoons?

iv. Where was the discharge from any of these structures released and during what years? Was this discharge treated before its release and if so, how and during what years? What was the chemical composition of any waste waters released?

i – iv. Lagoons did not exist on the property. There are storm water catch basins located on the property. Information regarding the timing of installation of the storm drains were installed is not available at this time. Surface runoff from the area drains either to on-site storm water drains or to those storm water drains located in the bordering streets. Site drainage slopes away from the Passaic River. No information is available at this time as to storm sewers or catch basins.

d) Please supply diagrams of any waste water collection, transport or disposal systems on the property.

Information not available at this time.

7)

a) For each hazardous substance, including, but not limited to, the substances listed in response to item (3) or identified in the responses to item (4), above, provide the total amount generated during the operations of the facility on an annual basis.

b) Were any hazardous substances, including, but not limited to, the substances listed in response to item (3) or identified in the responses to item (4), above, disposed of in or discharged to the Passaic River including its tributaries? If yes, identify the hazardous substances, estimate the amount of material discharged to or disposed of in the Passaic River including its tributaries and the frequency with which this discharge or disposal occurred. Also please include any sampling of the river which you might have done after any discharge or disposal.

a and b). Stanley was issued Directive No. 1 by the NJDEP in the fall of 2003. As a result of Stanley's "good faith" response to this Directive, NJDEP is actively considering withdrawing the Directive. Specifically, several years prior to the issuance of the Directive, Stanley undertook a Baseline Ecological Evaluation ("BEE") as part of its ISRA closure activities at the subject site. The BEE explored potential ecological receptors, contaminants of ecological concern and contaminant pathways. The BEE found no exposure pathways between the site and the Lower Passaic River and no ecological risk posed by the site to ecological resources or environmentally sensitive areas. By letter dated April 8, 2000 (attached hereto as Exhibit B), NJDEP stated that it concurred with and approved Stanley's conclusions in the BEE. Stanley requests that EPA take no further action until NJDEP determines whether it will withdraw the Directive.

8) Please identify any leaks, spills, explosions, fires or other incidents of accidental material discharge that occurred at the facility during which or as a result of which any hazardous substances, including, but not limited to, the substances listed in response to item (3) or (4), were released on the property, into the waste water or storm drainage system at the facility or to the Passaic River including its tributaries. Provide any documents or information relating to these incidents including the ultimate disposal of any contaminated materials.

a) Please provide the results of any sampling of the soil, water, air or other media after any such incident and before and after clean-up. Please provide in the information all sampling performed for or by NJDEP or EPA.

Please see Appendix 5, 6, 7, and 8 in the attached Site Evaluation Summary (Exhibit A).

9)

a) Was your facility ever subject to flooding? If so, was the flooding due to

i. Overflow from sanitary or storm sewer back-up, and/or

ii. Flood overflow from the Passaic River?

b) Please provide the date and duration of each flood event.

a and b). According to the Remedial Action Report for the Stanley Tools facility dated July 1995 (prepared by ENSR Consulting and Engineering) (attached hereto as Exhibit C): "*Based on a discussion with the City of Newark Engineering Department, the portion of the facility located on the east side of Chapel Street is within the 500-year flood plain and approximately 15 feet above mean sea level. On the west side of Chapel Street the facility is within the 100 year flood plain and approximately 10 feet above mean sea level.*"

No other information is available at this time as to whether the facility itself has actually sustained a flood.

10) Please provide a detailed description of any civil, criminal or administrative proceedings against your company for violations of any local, State or Federal laws or regulations relating to water pollution or hazardous waste generation, storage, transport or disposal. Provide copies of all pleadings and depositions or other testimony given in these proceedings.

The only violations in regard to the Chapel Street property of which Stanley is presently aware are waste water treatment system violations associated with the presently operating on-site remediation system. The remedial operation was initiated on December 15, 1998. Discharge of treated groundwater from the remediation system to the municipal sanitary sewer system is presently regulated by the Passaic Valley Sewerage Commissioners (PVSC) under Sewer Use Permit #0220084. Prior to obtaining the PVSC permit, the treated groundwater was discharged to the Passaic River via a storm sewer under NJPDES Permit No. NJ0132390.

11) Provide a copy of each document which relates to the disposal of all hazardous substances, including, but not limited to, the substances listed in response to item (3) or (4). If you are unable to provide a copy of any document, then identify the document by describing the nature of the document (e.g., letter, file memo, invoice, inventory form, billing records, hazardous waste manifest, etc.). Describe the relevant information contained therein. Identify by name and job title the person who prepared the document. If the document is not readily available, state where it is stored, maintained, or why it is unavailable.

Stanley is submitting the following relevant documents:

1. **Site Evaluation Summary dated May 24, 1985, prepared by Delia Christensen, Chief Chemist – Environmental Science with Stanley Laboratory (no longer employed at Stanley) (Exhibit A);**
2. **Stanley Tools, Inc. – Newark Facility letter from NJDEP, dated April 2000, signed by Michael A. Justiniano, Supervisor Bureau of Environmental Evaluation, Cleanup and Responsibility Assessment (Exhibit B);**
3. **Remedial Action Report (RAR) ISRA Remediation – Case No. 85178 dated July 1995, prepared by ENSR Consulting (Exhibit C);**

4. **Baseline Ecological Evaluation of the former Stanley Tools' Facility at 140 Chapel Street, Newark, New Jersey, dated August 1999, prepared by ENSR Consulting (attached hereto as Exhibit D);**
5. **General Information Submission dated March 20, 1985 (attached hereto as Exhibit E).**

12)

a) Did you or anyone else sample the soil, ground water, surface water, ambient air or other environmental media at the facility for purposes other than those identified in the questions above including CERCLA, RCRA, or ECRA/ISAR?

b) If so, please provide all other documents pertaining to the results of these analyses.

a – b). This site has been subjected to ECRA/ISRA review and, after a Baseline Ecological Evaluation, was found to have no impact on the Passaic River. The sampling data generated by the ECRA/ISRA review is voluminous, and is a matter of public record on file with NJDEP. If EPA requires any authorization to obtain access to these documents, Stanley will provide same.

13)

a) Has your company owned the facility at the location designated above? If so, from whom did your company purchase the property and in what year? If your company subsequently sold the property, to whom did your company sell it and in what year? Please provide copies of any deeds and documents of sale.

b) If your company did not own the facility, from whom did your company rent the facility and for what years? Please provide copies of any rental agreements.

c) To the extent that you know, please provide the names of all parties who owned or operated the facility during the period from 1940 through the present. Describe the relationship, if any, of each of those parties with your company.

a) – c). Previous owners and current addresses:

Year	Name	Current Address	Description of Operation
1875	**Atha Tool Company**	**Dissolved**	**Hammer Manufacturer**
1913	**Stanley Rule – Level**	**Current owner is successor**	**Hammer Manufacturer**
1920	**The Stanley Works**	**1000 Stanley Drive New Britain CT**	**Manufacturers Hammers Sledges, Mauls & Wedges**
1997	**Ramida Rest Brown**	**140 Chapel Street Newark NJ**	**Container Storage**

Available documents of purchase and sale, and deeds, are attached hereto as Exhibit F.

14) Answer the following questions regarding your business or company. Identifying a company that no longer exists, provide all the information requested, except for the agent for service of process. If your company did business under more than one name, list each name.

Stanley is a 160-year old company, with world-wide operations. The site at issue here, a former Stanley Tools facility in Newark, New Jersey, was closed in 1985 pursuant to ECRA/ISRA. Thus, for purposes of this question, Stanley has, after reasonable and diligent search, provided answers in connection with any operations at the 140 Chapel Street, Newark, New Jersey site unless otherwise noted.

a) State the legal name of your company

The Stanley Works

b) State the name and address of the president or the chairman of the board, or other presiding officers of your company.

John F. Lundgren, CEO and Chairman of the Board. Other presiding officers are set forth in the Annual Report enclosed herewith as Exhibit G. The address of both Mr. Lundgren and such officers is c/o The Stanley Works, 1000 Stanley Drive, New Britain, CT 06053.

c) State the number of people employed by your company.

The Stanley Works currently employs 14,231 people, worldwide.

d) Identify the state of incorporation of your company and your company's agent for service of process in the state of incorporation and in New Jersey.

The Stanley Works is incorporated in Connecticut. Its agent for service of process in Connecticut and New Jersey is: CT Corporation System, One Commercial Street, Hartford, CT 06103 and The Corporation Trust Company, 820 Bear Tavern Road, West Trenton, NJ 08628.

e) Provide a copy of your company's "Certificate of Incorporation" and any amendments thereto. **See Exhibit H attached hereto.**

f) If your company is a subsidiary or affiliate of another company, or has subsidiaries, or is a successor to another company, identify these related companies. For each related company, describe the relationship to your company; indicate the date and manner in which each relationship was established.

The Stanley Works' subsidiaries or affiliates that engaged in operations at the Chapel Street facility, and the dates and manner in which such entities became affiliated with The Stanley Works, are identified on the enclosed Exhibit I.

g) Identify any predecessor organization and the dates that such company became part of your company.

See 14(f), above.

h) Identify any other companies which were acquired by your company or merged with your company.

See 14(f), above.

i) Identify the date of incorporations, state of incorporation, agents for service of process in the state of incorporation and New Jersey, and nature of business activity for each company identified in the responses to items (14)(e), (f) and (g), above.

See Exhibit I.

j) Identify all previous owners or parent companies, address(es), and the date change in ownership occurred.

See Exhibit I.

15) Provide the name, address, telephone number, title and occupation of the person(s) answering this "Request for Information" and state whether such person(s) has personal knowledge of the responses. In addition, identify each person who assisted in any way in responding to the "Request for Information" and specify the question to which each person assisted in responding. Please include the names and addresses of former employees who were contacted to respond to any of the questions.

Debi J. Geyer
EHS Manager Corporate Environmental Affairs
The Stanley Works

Given the date of facility closure (1985) there are no longer any Stanley employees that have personal knowledge of this former facility. Ms. Geyer does manage the current environmental response action for the former Stanley facility located at 140 Chapel Street in Newark, NJ. She has compiled this response based on historical documents generated over the years for this location, the majority of which have already been submitted to the NJDEP. Theodore C. Morris, Assistant General Counsel, assisted Ms. Geyer in this response.

CERTIFICATION OF ANSWERS TO REQUEST FOR INFORMATION

State of Connecticut:
: ss. New Britain
County of Hartford :

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document (response to EPA Request for Information) and all documents submitted herewith, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete, and that all documents submitted herewith are complete and authentic unless otherwise indicated. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I am also aware that my company is under a continuing obligation to supplement its response to EPA's Request for Information if any additional information relevant to the matters addressed in EPA's Request for Information or the company's response thereto should become known or available to the company.

Debi J. Geyer
Debi J. Geyer
EHS Manager Corp., Environmental Affairs

Sworn to before me this 30th day of March, 2004.

Kimberly B. Nelson
Kimberly B. Nelson, Notary Public
My Commission Expires: July 31, 2004

EXHIBIT INDEX

A. Site Evaluation Summary, May 24, 1985

B. NJDEP Response to Stanley's BEE

C. Remedial Action Report

D. BEE

E. GIS

F. Purchase Agreement with Ramida

G. Annual Report

H. Incorporation Documents

I. The Stanley Works Subsidiaries

STANLEY

THE STANLEY WORKS

Since 1843

NEW BRITAIN, CONNECTICUT 06050

(203) 225-5111

May 24, 1985

Exhibit A

Mr. Anthony J. McMahon, Chief
Bureau of Industrial Site Evaluation
Division of Waste Management
New Jersey Department of Environmental Protection

Re: Stanley Tools
140 Chapel Street
Newark City, Essex County
ECRA Case #85-178

Dear Mr. McMahon:

In accordance with our request for extension, I am enclosing the Site Evaluation Submission for the above mentioned facility.

We would appreciate a meeting to discuss the sampling plan at your earliest convenience.

Should you have any questions, please contact me at the Stanley Laboratory.

Sincerely yours,

Delia M Christensen

Delia M. Christensen
Chief Chemist - Environmental Science
Stanley Laboratory
1309 Corbin Avenue
New Britain, CT 06053
(203) 225-5111 - Ext. 5211

jzz

877630015

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

Let's protect our earth

DIVISION OF WASTE MANAGEMENT
HAZARDOUS SITE MITIGATION ADMINISTRATION
BUREAU OF INDUSTRIAL SITE EVALUATION

ENVIRONMENTAL CLEANUP RESPONSIBILITY ACT (ECRA)

APPLICATION FOR ECRA REVIEW

SITE EVALUATION SUBMISSION

This is the second part of a two part application submittal and must be submitted within 30 days following public release of the decision to close operations or execution of an agreement of sale or option to purchase.

DATE 5/24/85

NAME OF APPLICANT STANLEY TOOLS

ADDRESS 140 CHAPEL STREET

CITY OR TOWN NEWARK ZIP CODE 07105

MUNICIPALITY ______ COUNTY ESSEX

SUBMIT THE FOLLOWING:

9. A scaled site map identifying all areas where hazardous substances or wastes have been or currently are generated, manufactured, refined, transported, treated, stored, handled or disposed, above or below ground.

   IS THIS MAP ENCLOSED? X YES, (See Appendix # 1) ___ NO

10. A detailed description of the current operations and process at the industrial establishment organized in the form of a narrative report designed to guide the Department step-by-step through a plant evaluation, with particular emphasis on areas of the process stream where hazardous substances and wastes are generated, manufactured, refined, transported, treated, stored, handled or disposed on site, above or below ground. Please note that establishments which ceased production prior to December 31, 1983, but are subject to ECRA because of on-going storage beyond that date, must provide details on past operations.

    IS THIS REPORT ENCLOSED? X YES, (See Appendix # 2) ___ NO

    IF YOU HAVE CHECKED "NO," STATE THE REASON(S): ______

FOR DEP USE ONLY

DATE RECEIVED ______

NOTICE NUMBER ______

877630016

11.A. A description of the types, age, construction material, capacity, contents, and locations of storage vessels, surface imppoundments, landfills, or other types of storage facilities, including drum storage, containing hazardous substances or wastes.

ARE THESE FACILITIES IDENTIFIED ON YOUR SITE MAP OR DESCRIBED IN A NARRATIVE REPORT? X YES, (See Appendix # 3) ___ NO

IF YOU HAVE CHECKED "NO," STATE THE REASON(S): ____________

11.B. The Department requires that satisfactory leak tests such as the Petrotite (formerly the Kent Moore test) or the Leak Lokator LD-2000 Test or Soil Borings be performed to verify the integrity of all underground tanks and that the results of such tests be submitted to the Department.

ARE THE RESULTS OF THE LEAK DETECTION TEST OR THE SOIL BORINGS ENCLOSED? ___ YES, (See Appendix #___) X NO

IF YOU HAVE CHECKED "NO," STATE THE REASON(S): CONTRACTOR SCHEDULE TO COMPLETE PETROTITE TESTING PRIOR TO 5/31/85.

12. A complete inventory of hazardous substances and wastes, including description and location of all hazardous substances or wastes generated, manufactured, refined, transported, treated, stored, handled or disposed on site, above and below ground, and a description of the location, types and quantities of hazardous substances and wastes that will remain on site. (Attach additional sheets if necessary.)

MATERIAL	QUANTITY	LOCATION	METHOD	TO REMAIN ON SITE (YES OR NO)
SEE APPENDIX	4			

MATERIAL	QUANTITY	LOCATION	METHOD	TO REMAIN ON SITE (YES OR NO)

13. A detailed description, date and location on a scaled map of any known spill or discharge of hazardous substances or wastes that occurred during the historical operation of the site and a detailed description of any remedial actions undertaken to handle any spill or discharge of hazardous substances or wastes. (Attach additional sheets if necessary.)

IS THIS INFORMATION ENCLOSED? X YES, (See Appendix # 5) ___ NO

IF YOU HAVE CHECKED "NO," STATE THE REASON(S): ____________________

____

____

____

ARE THE SPILLS IDENTIFIED ABOVE INDICATED ON THE SCALED SITE MAP? X YES ___ NO

IF YOU HAVE CHECKED "NO," STATE THE REASON(S): ______________________

____

____

____

14. A detailed sampling or other environmental evaluation measurement plan which includes proposed soil, groundwater, surface water, surface water sediment, and air sampling determined appropriate for the site. (This sampling plan must be developed in conformance with ECRA Regulations N.J.A.C. 7:1-3.14 et seq., and Quality Assurance Guidelines as developed by DEP, copies of which are enclosed.)

IS THE SAMPLING PLAN ENCLOSED? _X_ YES, (See Appendix #_6_) ___ NO

IF YOU HAVE CHECKED "NO," STATE THE REASON(S): ______________________

____

____

____

15. A detailed description of the procedures to be used to decontaminate and/or decommission equipment and buildings involved with the generation, manufacture, refining, transportation, treatment, storage, handling, or disposal of hazardous waste or substances including the name and location of the transporter, the ultimate disposal facility, and any other organizations involved.

IS THE DETAILED DESCRIPTION ENCLOSED? _X_ YES, (See Appendix #_7_) ___ NO

IF YOU HAVE CHECKED "NO," STATE THE REASON(S): ______________________

____

____

____

16. Copies of all soil, groundwater and surface water sampling results, including effluent quality monitoring, conducted at the site of the industrial establishment during the history of ownership by the owner or operator, including a detailed description of the location, collection, chain of custody, methodology, analyses, laboratory, quality assurance/quality control procedures, and other factors involved in preparation of the sampling results;

ARE HISTORICAL RESULTS ENCLOSED? _X_ YES, (See Appendix #_8_) ___ NO

IF YOU HAVE CHECKED "NO," STATE THE REASON(S): ______________________

____

____

____

17. If you currently have a Spill Prevention Control and Countermeasure Plan (SPCC) for this facility, enclose a copy with this submittal.

IS YOUR SPCC PLAN ENCLOSED? _X_ YES, (See Appendix #9)
___ NO, this facility is not required to have an spcc plan.

18. Please list any other information you are submitting:

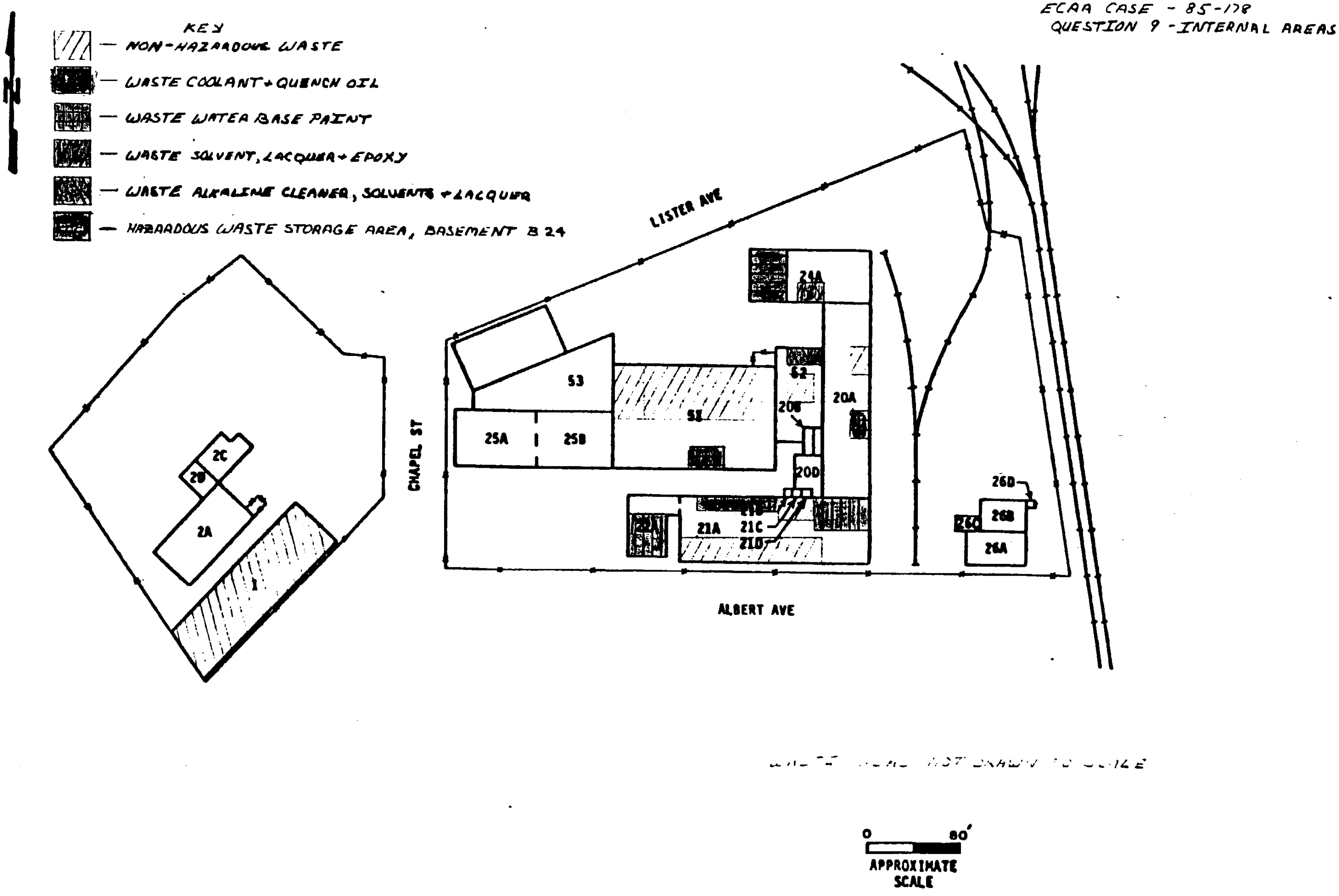
APPENDIX 10

BUILDING UTILIZATION

Send complete information package to:

BUREAU OF INDUSTRIAL SITE EVALUATION
DIVISION OF WASTE MANAGEMENT
NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION
CN-028
TRENTON, N.J. 08625
ATTN: ECRA NOTICE SUBMISSION

ECAA CASE - 85-178
QUESTION 9 - INTERNAL AREAS



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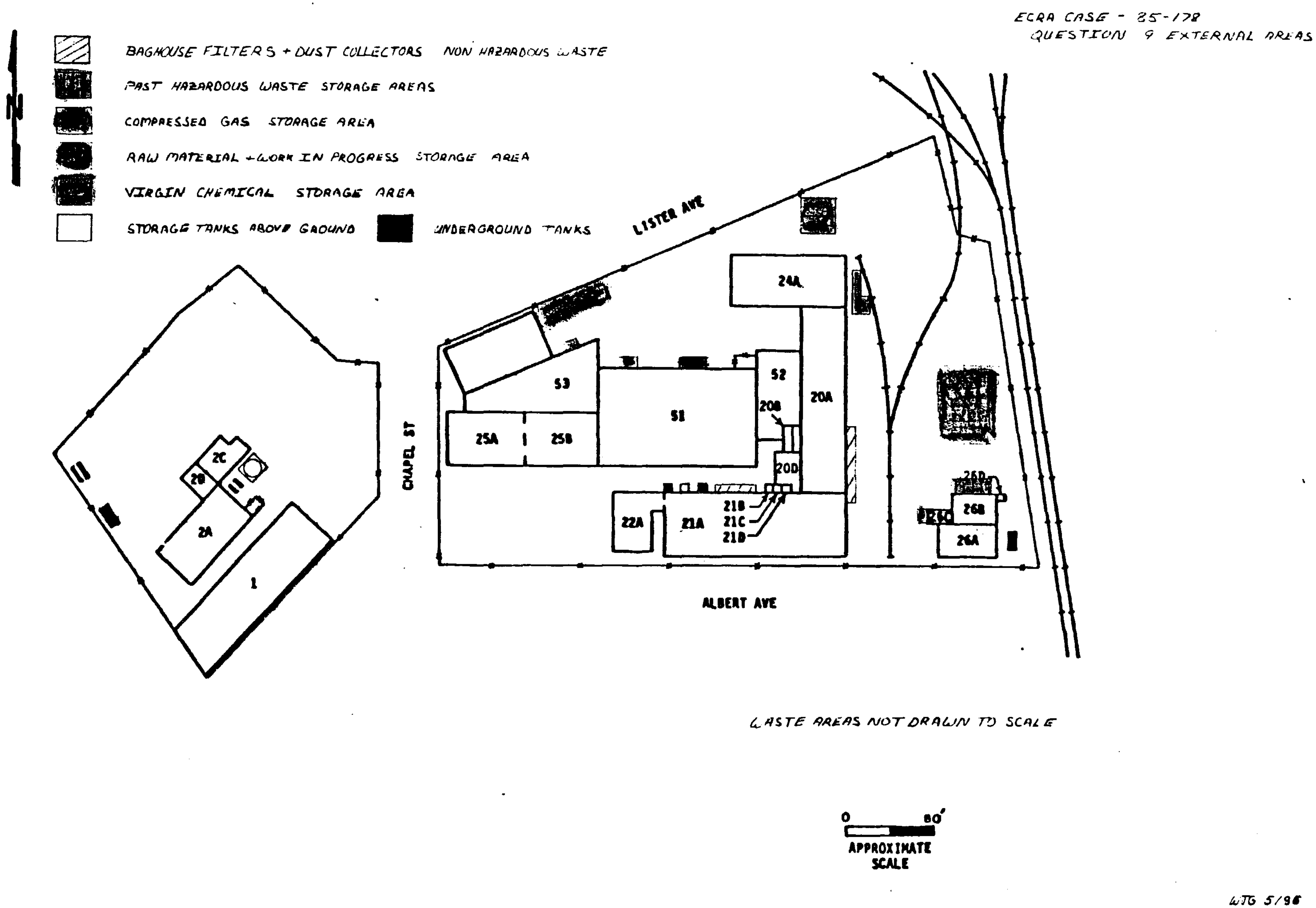
ECRA CASE - 85-178
QUESTION 9 EXTERNAL AREAS
N
BAGHOUSE FILTERS + DUST COLLECTORS NON HAZARDOUS WASTE
PAST HAZARDOUS WASTE STORAGE AREAS
COMPRESSED GAS STORAGE AREA
RAW MATERIAL + WORK IN PROGRESS STORAGE AREA
VIRGIN CHEMICAL STORAGE AREA
STORAGE TANKS ABOVE GROUND
UNDERGROUND TANKS
LISTER AVE
CHAPEL ST
ALBERT AVE
24A
20A
52
20B
20D
51
53
25A
25B
22A
21A
21B
21C
21D
26D
26B
26C
26A
2C
2D
2A
1
WASTE AREAS NOT DRAWN TO SCALE
0
80'
APPROXIMATE SCALE
WTG 5/96

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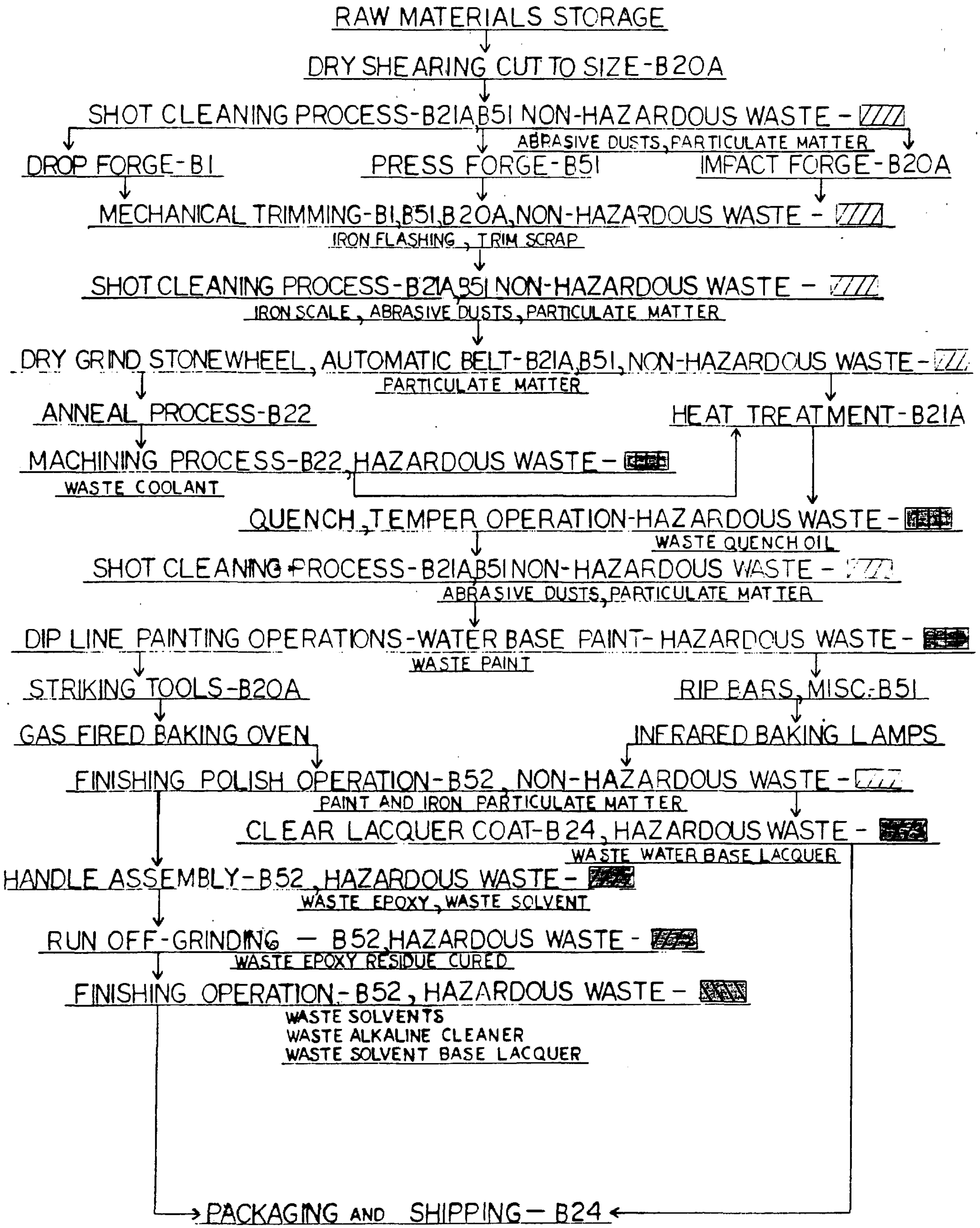
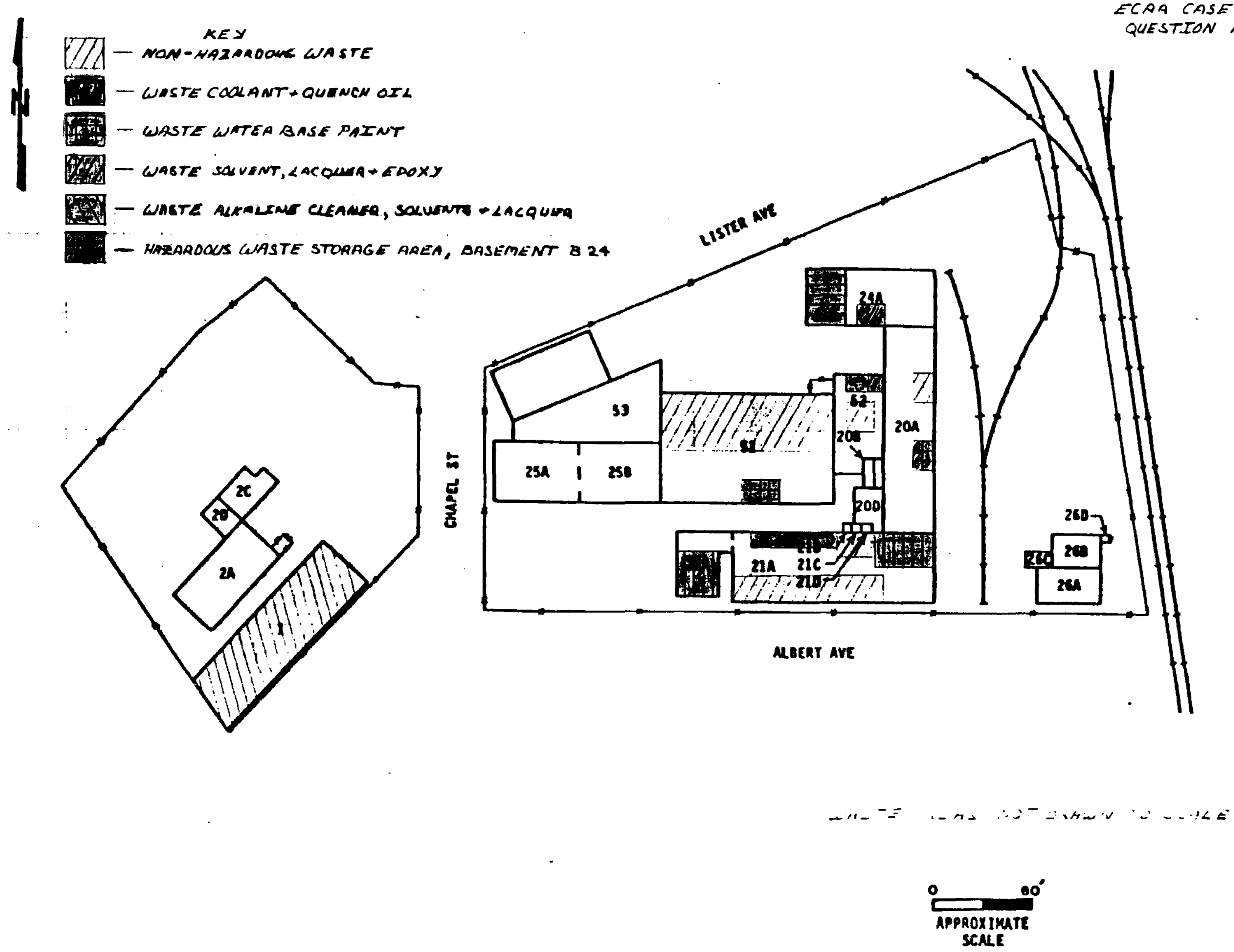
ECRA CASE - 85-178 STANLEY TOOLS-NEWARK, NJ.

QUESTION - 10. PROCESS FLOW CHART



ECRA CASE - 85-178
QUESTION 10-FLOW CHART MAP



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Stanley Tools

140 Chapel Street

Newark City, Essex County

ECRA Case #85-178

SITE EVALUATION SUBMISSION

Question #10 - Appendix 2)

Stanley Tools, a division of The Stanley Works, operates a facility in Newark involved in the manufacture of hand tools. Products at this facility include hammers, sledges, mauls, bars, and wedges.

Steel is received in fifteen foot lengths and is stored outside in the paved courtyard east of Building 20. From there the steel bars are brought inside and utilizing a Hil Acme shearer are cut to length depending on the product to be manufactured. This is a dry operation and does not utilize any chemicals. After the shearing process, work in progress is sent to a shot cleaning process to remove surface oxidation. The shot cleaning process involves tumbling part on part in an atomosphere of high velocity steel shot. This operation is performed in Building 21 and Building 51. Baghouse filters located in the alleyway between Buildings 51 and 21, as well as along the east wall of Building 20 are used to collect any of the abrasive dust or particulate matter that results from the process. The collected material is handled as non-hazardous solid waste and is disposed of in an ID 26 sanitary landfill.

After the shot cleaning process, the next manufacturing step is forging. Forging is performed in three separate buildings on site depending on the product involved. In Building 1, drop forging is performed utilizing oil fired slot furnaces. In Building 51, parts are press forged utilizing either the oil fired slot furnace or electric induction heaters. In Building 20A, impact forging is performed utilizing electrical resistance heaters. After the forging operations, all parts are mechanically trimmed regardless of the type of forging performed. Scrap is collected and placed in one of three 40 cubic yard containers stored on-site. Material is sold to Schiavone and hauled off-site when the containers are full.

The trimmed parts return to the shot cleaning operations prior to being ground on stone wheel or automatic belt grinders. All grinding operations are performed dry and take place in Buildings 21A and 51. The baghouse filters that collect dust and particulate from grinding operations are located in the alleyway between Buildings 51 and 21. Some grinding machines have small dust collectors attached to the machine. This material is handled as non-hazardous solid waste and is disposed of in an ID 26 sanitary landfill.

At this point, parts that are to be drilled or milled are annealed in gas fired furnaces located in Building 22. After annealing, the parts are machined using Castrol, a water soluble coolant. Spent coolant is placed in 55 gallon drums. When feasible, spent coolant is filtered and reused. If this procedure is not possible, the drums are ticketed with internal hazardous waste tracking labels and moved to the basement of Building 24-A for storage. Coolants handled as waste may be combined with waste oil generated from other manufacturing operations. Points of generation of waste oil are described in Appendix . Waste oil/coolant is hauled from the site in bulk by Hitchcock Oil Pollution Systems of Connecticut. The shipment is manifested and listed as New Jersey waste number X726. Hitchcock is an approved oil reclaimer in Connecticut.

The next step in the manufacturing process is heat treating. Heat treating involves heating a part to a desired temperature after which the part is quenched for proper hardness, and tempered for toughness. This operation is conducted in Building 21. Three of the heat treat furnaces are gas fired and operate under a nitrogen atmosphere utililizing an internal oil quench. The quench oil is Houghton Quench "K" . Once per year, the quench oil is pumped from the tank into 55 gallon drums to allow for cleaning of the tank. If the oil is deemed acceptable it is returned to the quench tank when the cleaning process is completed. Should the oil become contaminated with water and thereby unsuitable for reuse, the oil would be ticketed with internal hazardous waste labels and moved to Building 24 for storage. Four gas fired tempering ovens operate at normal atmospheric conditions with no subsequent quench. Six electrical induction heating systems also harden product and use either water or AquaQuench 251, a synthetic water soluble oil, as a quench media.

Parts return to Buildings 21 or 51 for shot cleaning after tempering. The shot cleaning process is required at this point to clean the surface prior to subsequent painting operations.

Painting of product is performed in both Building 20A and Building 51. All striking tools and bars are painted in Building 20A. This operation utilizes a conveyorized dip line capable of coating the product with either black or red water reducible paint. Suppliers of paint for this line are Spraylat or Technical Coatings. Spraylat material includes TB-8533 Black and TR-8679 Red. Technical Coatings material is 76K64,31-51 Red and 7-GL06,31-82 Black. Since this is a dip operation, paint loss is minimal. Whatever paint might drip off the parts is collected on drip trays and directed back into the dip tank. The painted parts then enter a gas fired baking oven. This oven operates at a temperature of 400^{o} F. Semi-annually, paint is pumped from the dip tank and placed in 55 gallon drums to allow for cleaning of the tank. The cleaning process is basically to remove product that has fallen into the tank during normal operations. Should a color be discontinued from use, or should the paint become contaminated, the waste paint drums would be labeled with an internal hazardous waste label and placed in Building 24 for storage.

All rip bars and miscellaneous parts are painted in Building 51. This operation also utilizes a conveyorized dip line to apply Spraylat TB-8533 Black water reducible paint. Once again, paint loss is minical and paint collected on drip trays is returned to the paint tank. The part then enters a baking zone heated by infrared lamps. Some parts require accent color to be added in a hand dipping operation.

The painted parts are then sent to Building 52 for final finish polishing operations utilizing belt polishers. No chemicals are used in this procedure. Dust generated in this operation is collected by a baghouse filter located along the East wall of Building 20.

Parts requiring assembly are transferred to the assembly area in Building 52. Wooden handles are attached to parts utilizing a hydraulic press and metal or wooden wedges. Fiberglass handles are brush coated with a dual system epoxy, 36-48 resin/S-6 catalyst, manufactured by Hardman. The coated handles are then pressed into the hammer head. The lower handle body is dipped into a general purpose nitrile rubber adhesive supplied by BF Goodrich, A-851-B. The adhesive is allowed to air dry. The adhesive is then activated by a solution containing 60% Methyl Ethyl Ketone and 40% Naphtha. The activation solution is introduced into a rubber hand grip to lightly coat the inside surface. Residual activation solution is removed from the grip and returned to a holding container for reuse. No waste is generated during this operation. The handles are then pressed into the grip which then activates the adhesive. This same grip attachment process is used for tubular steel handles. The tubular steel handle is attached to the hammer head by a pressing operation.

The polished surface areas of parts which do not require assembly are coated with a water reducible clear lacquer supplied by Union Oil Co., Blend 1820. The clear lacquer is then allowed to air dry. This operation is performed in Building 24. The majority of the parts are coated in a dip application, with a minor amount of hand brushing. A small amount of thinner is generated during clean up procedures. This material would be drummed and labeled with internal hazardous waste tickets prior to being stored in Building 24. The final step for these products is packaging which is also performed in Building 24.

Assembled products are reground to remove run-off (i.e. drip marks, burrs, etc.). This operation is conducted in Building 52. Waste generated at this point would be collected in the baghouse filter located along the East wall of Building 20. The products are transferred to a conveyorized finishing machine. At this point the parts are racked in a vertical position with the heads facing down. The heads now go through a finishing operation where they are dipped in a series of 20 gallon tanks. The finishing operation is comprised of the following steps:

1. Mineral spirits - to remove oil or grease that may come in contact with the part during assembly. Replenishment of the tank is done regularly. Once per month the tank is drained into a 55 gallon drum. The drum is ticketed with an internal hazardous waste label. Full drums are moved to the basement of Building 24 for storage.

2. Cold water rinse - to remove mineral spirits

3. Ultrasonic cleaning - Clepo 8J alkaline cleaner
Once per month this tank is drained to sewer.

4. Cold water rinse - to remove traces of alkaline cleaner
sodium nitrite is sometimes added as
a rust inhibitor

5. Isopropyl Alcohol dip - to remove residual water

Once per month this tank is drained to a 55 gallon drum. The drum is ticketed with an internal hazardous waste label. Full drums are stored in the basement of Building 24.

6. Solvent lacquer dip - Tenax TD-8484 clear lacquer coating

Once per month this tank is drained to a 55 gallon drum. The drum is ticketed with an internal hazardous waste label. Full drums are stored in the basement of Building 24.

7. Air dry - cure the lacquer coating

After the assembled parts are finished, they are transferred to Building 24 where labels are applied as required. Parts are then packaged and readied for shipment.

Stanley Tools

ECRA Case #85-178

Sources of Waste Oil at Stanley Tools , Newark

Dept.	Bldg.	Machine	Material
D141	21	AIH Induction Hardeners	Grease, Lube Oil
D141	21	Dow Hardening Furnace	Quench Oil Houghton "K"
D141	21	Lepel Induction Hardeners	Grease, Lube oil
D142	20	Impactor	EP 140 Lube oil
D142	20	Press E110	EP #90 Lube oil
D142	20	Shear	Hydraulic Oil #8
D142	20	Shear	Gear Lube oil
D144	51	Ervin Shot Blast Machine	Hydraulic Oil DTE Xtra Hvy
D144	51	Presses Erie	Gear Lube oil;EP#90
D144	51	Presses E110	EP #90 lube
D144	51	Roll Brand	Hydraulic Oil #8
D145	52	Assembly Press	Hydraulic Oil #8
D145	52	Lacquering Machine	Hydraulic Oil #8
D145	52	Roll Branders	Hydraulic Oil #8
D148	21	Cetco Grinder	Cutting oil
D148	21	Cetco Grinder	Hydraulic Oil #8
D148	22	Checkerface Milling Machine	Cutting oil
D148	22	Checkerface Milling Machine	Hydraulic Oil #8
D148	22	Kingsbury Drilling Machine	Cutting oil

Dept.	Bldg.	Machine	Material
D148	51	Devine Grinder	Hydraulic Oil Aro-Lube
D148	51	Pein Grinder	Hydraulic Oil #8
D175	51	Fork Trucks	Motor oil
D175	53	Fork Trucks	Transmission fluid
D175	53	Fork Trucks	Brake Fluid
D175	53	Misc. Service	Hyd #f442
D175	53	Mics. Service	Gear Lube
D175	53	Misc. Oils for Service	Hyd #76
D176	25	EDM machines	EDM oil
D176	25	Misc. Metal Cutting Machines	Hydraulic Oil #8
D176	25	Surface grinders	Cutting oil
D199	26	Compressors	Lube oil Delvac #1210

PREVIOUS OPERATIONS

During the ownership of the Stanley Tools - Newark facility, Stanley made many improvements in the methods used to manufacture hand tools. Some of these changes affected chemicals used in the process and resultant wastes.

The previous pages dealt with current operations at the facility and chemicals presently used. However, the sampling plan addresses some areas of environmental concern because of past operations. Two major changes are described below.

Until 1973, organic coatings used at Stanley Tools consisted of solvent base paints and nitrocellulose lacquers. Changes were made in this area to reduce air emissions, improve employee work areas, and improve products. This operation was conducted in Building 20A.

Until 1977 lead pots were used in the manufacturing process. These pots were located in Building 21.

Stanley Tools

140 Chapel Street

Newark City, Essex County

ECRA Case #85-178

SITE EVALUATION SUBMISSION

QUESTION 11A - APPENDIX 3

Stanley Tools - Newark has ten oil storage tanks on-site. Each one is described separately below:

1. On the east side of Building 26-A, there is a 10,000 gallon fuel oil tank. This tank is in use and contains #2 fuel oil. At one time this tank stored #4 fuel oil. This is a buried tank and is approximately forty years old. Construction is mild steel but shell thickness is unknown. This tank will be filled and Petrotite tested.

2. In the alleyway between Buildings 21 and 51 there is an above ground tank which contains quench oil. The capacity of this tank is 750 gallons. The tank is surrounded by a reinforced concrete enclosure. This tank is in use. The tank is approximately forty years old. Construction of the tank is mild steel with a shell thickness of 3/8 inch. Since this is an above ground tank it requires no testing.

3. Also in the alleyway between Buildings 21 and 51 is a 1000 gallon buried tank containing quench oil. This tank is in use and is approximately thirty years old. Material of construction is mild steel but shell thickness is unknown. This tank will be filled and petrotite tested.

4. In the same location as items 2 and 3, there is a 1000 gallon buried tank containing #2 fuel oil. This tank is in use. Again, we believe the tank is approximately thirty years old and is constructed of mild steel. Shell thickness is unknown. This tank will be filled and Petrotite tested.

5. On the west side of Building 2A there is a 12,000 gallon partially buried fuel oil storage tank. This tank is not presently used and is covered with sand. Construction of the tank is mild steel with an unknown shell thickness. The tank age is also unknown. Integrity of the tank will be checked utilizing soil borings.

6/7. Northwest of Building 2A, are located two 8,000 gallon tanks. These tanks are presently in use and contain #2 fuel oil. These are buried tanks and are constructed of mild steel. These tanks are approximately twenty-five years old. The integrity of these tanks will be checked utilizing soil borings, since we would not be able to use 16,000 gallons of fuel oil prior to closure.

8. East of Building 2A, is located a 10,000 gallon fuel oil storage tank. The tank is presently not in use. The tank is constructed of mild steel with an unknown shell thickness. This tank is approximately twenty-five years old. Originally this tank was used for the storage of #4 fuel oil; in later years it stored #2 fuel oil. Borings will determine the integrity of the tank since the plant would not be able to consume the oil prior to closure if the tank was filled..

9/10. Between Building 2A and tank #8 are two additional tanks. Closest to building 2A, is a 1500 gallon buried tank which previously stored Naphtha. The other tank is also underground and previously stored gasoline. These tanks were installed in 1954. The integrity of the tanks will be checked with borings since these materials are no longer used on-site.

Current hazardous waste and virgin chemical storage area is located in the basement of Building 24-A. Liquid hazardous waste is stored in 55 gallon containers which previously held compatible material. The area is secured and checked daily. Containers of virgin chemicals vary in size from one gallon to 55 gallon drums.

Stanley Tools

ECRA Case #85-178

Complete Inventory of Hazardous Substances and Hazardous Wastes - Ques. 12

Attached is an inventory of hazardous substances used in manufacturing . This inventory was taken May 2, 1985 and will be updated monthly until closure of the facility. Also attached is an inventory of hazardous waste on site dated May 16, 1985.

The manufacturing processess at Stanley-Newark are being transferred to other Stanley facilities. Therefore, as Stanley begins to move manufacturing equipment, the virgin chemicals associated with that process will be shipped by common carrier to the designated facility in accordance with all applicable requirements. Purchases of chemicals are being carefully monitored to insure that a minimum inventory is maintained until closure.

All hazardous waste will be removed from the plant within ninety days of generation by a permitted transporter and will be manifested to an interim status or permitted hazardous waste facility. Waste oil will be handled in bulk and transported to Hitchcock Waste Oil, Ct. for reclamation.

Although Stanley has indicated it is closing the facility, it would be interested in finding a buyer for the property and is conducting an active search at the present time. The issue as to whether any hazardous substances such as might be contained in transformers or containers such as tanks might remain on the plant property would be dependent on buyer and buyers requirements for the property.

Stanley Tools
ECRA Case #85-178

Hazardous Waste Inventory- May 16, 1985

Material	Quantity 55 gallon drums
Waste Lube oil/water	17
Waste Quench oil	4
Waste Cutting oil/water	9
Waste solvent/water	6
Waste compressor oil	2

Stanley Tools
ECRA Case #85-178

The following table comprises a list of chemicals (virgin materials) used in the manufacturing processes at Stanley Tools.

Material	Description	5-02-85 inv.	Bldg.Used
Acetylene	gas	4cyl.(251cft)	53
Adhesive	A851B	45 gal.	52,24
Adhesive	Loctite	1.69 oz.	53
Adhesive	Zip Grip #10	14 grams	25
Amine	pH Adj.#Td7915	15 gallons	21
Ammonia	Anhydrous	450 pounds	25
Antifreeze		50 gallons	53
Argon	gas	1 cyl(251 cft)	53
Asbestos	gaskets	22 feet	53
Asbestos	sheets	3766 sq.in.	53
Asbestos	insulation	96 sq. ft.	53
Cleaner	Ally #0327	35 gallons	53
Cleaner	Contact (C.R.C.	5 (12oz.)cans	53
Cleaner	Enforce	10 gallons	53
Cleaner	Formula #88	0.75gallon	25
Cleaner	Super-Terj	400 pounds	52,24
Cleaner	Thrill, Drain	3 quarts	53
Detergent	Liquid Enforce	7.5 gallons	25
Diatomaceous Earth	Celite #545	950 pounds	25
Die Lube	Delta Forge 1001	55 gallons	51
Die Lube	Delta Forge 100	55 gallons	20
Dye	Dykem	64 oz.	25
Epoxy	Epocap 3648	13gallons	52,24
Epoxy	Epocure S-6	11 gallons	52,24
Epoxy	Devcon	75 pounds	25
Epoxy	Repair Kit	19.5 oz	25
Fungicide	00 wafers	24 oz.	25
Gasoline		5 gallons	53
Glue	for grit	100 pound	52
Grease	#2 cartridges	50 pounds	25
Grease	Never-Seez	6 pounds	51
Insecticide	Aqufog	10 gallons	53
Kopr Shield		5 pints	20
Lacquer	Clear 60T-48	80 gallons	52,24
Lacquer	Clear TD8484	35 gallons	52.24
Lacquer	Touch up	35 (13oz)cans	52,24
MEK		54 gallons	52,24
Mineral Spirits		220 gallons	52,24
Mold Release			25
Naphtha		110 gallons	52,24

Material	Description	05-02-85 inv.	Bldg. Used
Nitric Acid	10% solution	5 gallons	21
Nitrogen	comp. gas	1 cyl(279cuft)	25
Nitrogen	Liquid	3000 gallons	21
Oil	Brake fluid	0.5 gallon	all
Oil	EDM	165 gallons	25
Oil	Rust Preventative	110 gallons	52
Oil	trans. fluid	1.5 gallons	all
Oil, cutting	water soluble	0 gallons	51,22
Oil hydraulic	Aro-lube	0.75 gallons	51
Oil hydraulic	#76	0.5 gallons	all
Oil hydraulic	#8	3 (340 gal)tks	all
Oil hydraulic	F442	0.5 gallon	all
Oil hydraulic	DTE Extra Hvy	110 gallons	51
Oil, lube	Delvac 1210	55 gallons	26
Oil, lube	EP #90	3(340gal tanks)	51
Oil, lube	EP #140	110 gallons	20
Oil, lube	gear	110 gallons	51
Oil, quench	Houghton "K"	750 gallons	21
Oil, motor	10W30	110 gallons	all
Oxygen	comp. gas	4 cyl.(251cf)	43
Paint	Black #31-82	50 gallons	21
Paint	Black #C-3909	5 gallons	21
Paint	Black TB8533	220 gallons	21
Paint	Covey Blue #31-35	50 gallons	21
Paint	oil base	44 gallons	53
Paint	Red #TR8679	165 gallons	21
Paint	Red #TR8679	80gallons	21
Paint	traffic	5 gallons	53
Paint	urethane spray	9 (12 oz cans)	53
Paint	water base	6 gallons	53
Propane	comp. gas	500 gal. tank	all
Quenchant	Aqua Quench 251	165 gallons	21
Rock Salt		22(80 lb.bags)	53
Soap	Hand, powder	330 pounds	all
Sodium Nitrite		100 pounds	52,24
Solvent	Butylcellosolve	55 gallons	52,24
Solvent	Clepo 8-J	0 (5gal cans)	52,24
Solvent	Radi-aze #204	110 gallons	53
Solvent	Yield	62 (12 oz cans	53,25
Thinner	Lacquer #1820	165 gallons	21
Vapocarb		5 gallons	25
Weed Killer	DU-IN 24	50 gallons	53

Materials are stored in the basement of Building 24 unless in use in the manufacturing area.

Stanley Tools

ECRA Case #85-178

Appendix 5

DESCRIPTION OF SPILL OR DISCHARGE

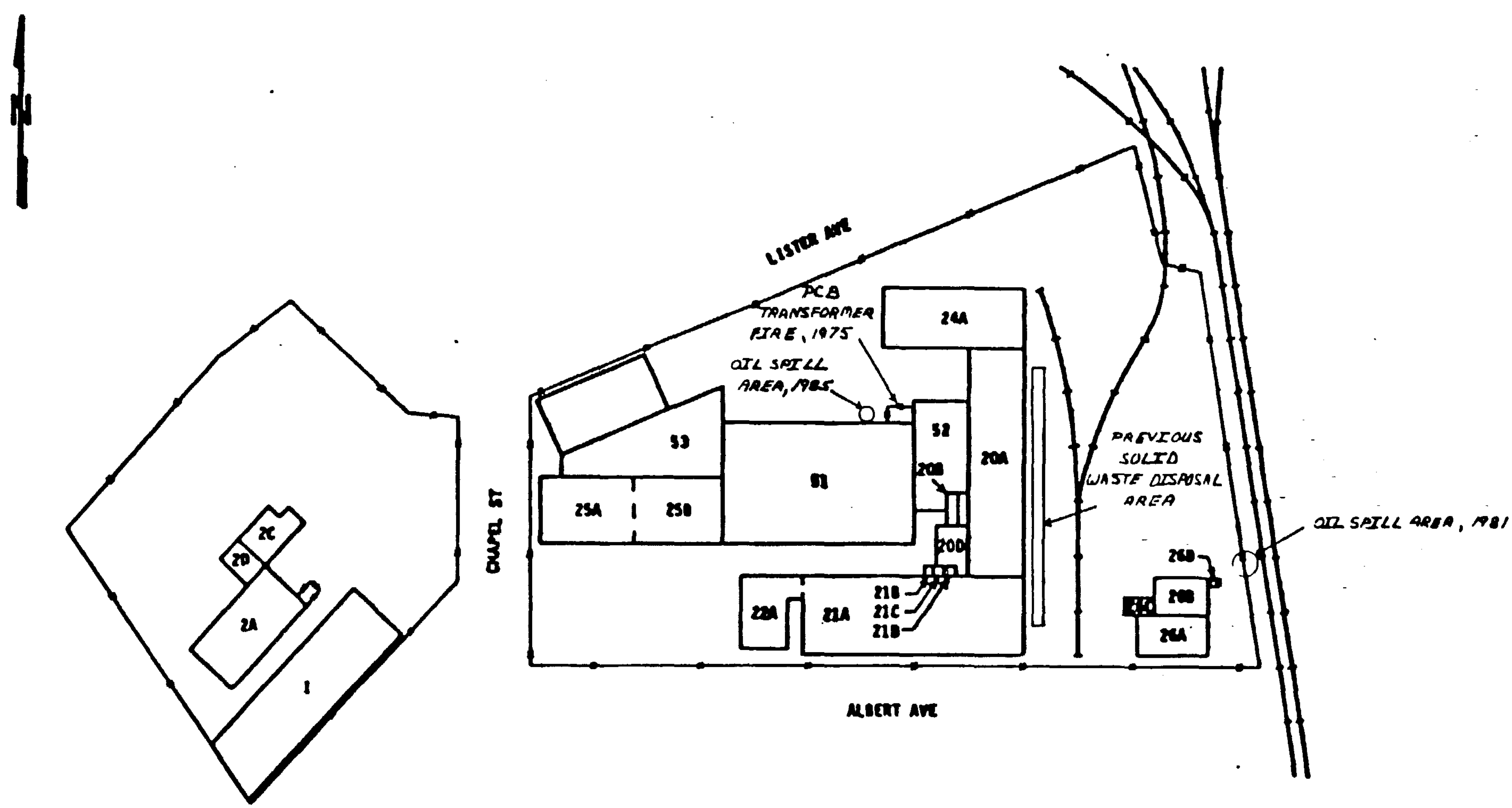
During the operation of the facility, the following spills or discharges are known to have occurred. Each area if included as an area of potential environmental concern and will be assessed during the sampling program:

1. In 1975, a PCB transformer caught on fire which resulted in failure of the top hatch of the unit. Long term employees believe the loss of dielectric fluid, if any, was minimal and limited in area covered. No records exist to indicate whether the soils around the transformer were tested for PCB. No clean up was conducted since the release was limited to the area of the enclosure. The transformer was repaired and placed back in service with non-PCB oil.

2. In 1981, an operator error resulted in a spill of approximately 100 gallons of oil on the East side of Stanley property; some oil flowed onto the adjacent Central New Jersey Railroad right of way. The operator was pumping waste oil from 55 gallon drums thru a filter into new drums. This spill was reported to the Office of Hazard Management and was asigned Case #81-9-3-6. All oil and oil-contaminated earth was scraped up and placed in 55 gallon drums. The contaminated soil was analyzed and results indicated oil and earth with no PCBs present. The contaminated material (20 partially full drums) was transported by S&W Wastes (NJF096865837) to their New Jersey facility under manifest #NJ 0071705 for solidification and subsequent disposal.

3. In April,1985, an oil collection device caught on fire and resulted in a oil spill outside Building 51. Since this area is in the direct vicinity of the PCB transformer incident, contaminated soils were not removed at this time.pending the results of proposed PCB sampling plan. Surficial oil was adsorbed utilizing speedi-dri.

4. The east side of Building 20A was used at one time for disposal ofindustrial solid waste. Currently visible is some areas are deposits of iron oxide scale and grinding swarf.



DISPOSAL + SPILL AREAS NOT DRAWN TO SCALE

0 60'
APPROXIMATE SCALE

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Stanley Tools

140 Chapel Street

Newark City, Essex County

ECRA Case #85-178

SITE EVALUATION PLAN

Question # 14 - Areas of Environmental Concern and Sampling Plan

Appendix 6

INTRODUCTION

Purpose and Scope

The proposed sampling program described below was prepared and will be implemented by ENVIRON Corporation in cooperation with Dan Raviv Associates, Inc. (DRAI). The purpose of the sampling program is to determine soil and groundwater conditions at the Stanley Tools facility in Newark, New Jersey, in order to comply with the requirements of ECRA. The proposed sampling program includes: monitoring well installation, well development, groundwater sampling and analysis, soil sampling and analysis, testing to insure the integrity of underground storage tanks and PCB analysis of transformer fluids. DRAI protocols for drilling and sampling of water and soils will be followed. These protocols have been previously submitted to the New Jersey Department of Environmental Protection (NJDEP), Bureau of Industrial Site Evaluation.

Site Description

The Stanley Tools facility is located in Newark, Essex County, New Jersey. The site is located in the Piedmont Physiographic Province of New Jersey. The Site is underlain by Pleistocene deposits of glacial clay, silt, sand, gravel and boulders which overlie the Triassic Brunswick formation (bedrock). The main features of the site are outlined on Figure 14.1 and include: site boundaries, building numbers, identification of adjacent roadways, and delineation of areas of environmental concern. The basis upon which the areas of environmental concern were selected is described below.

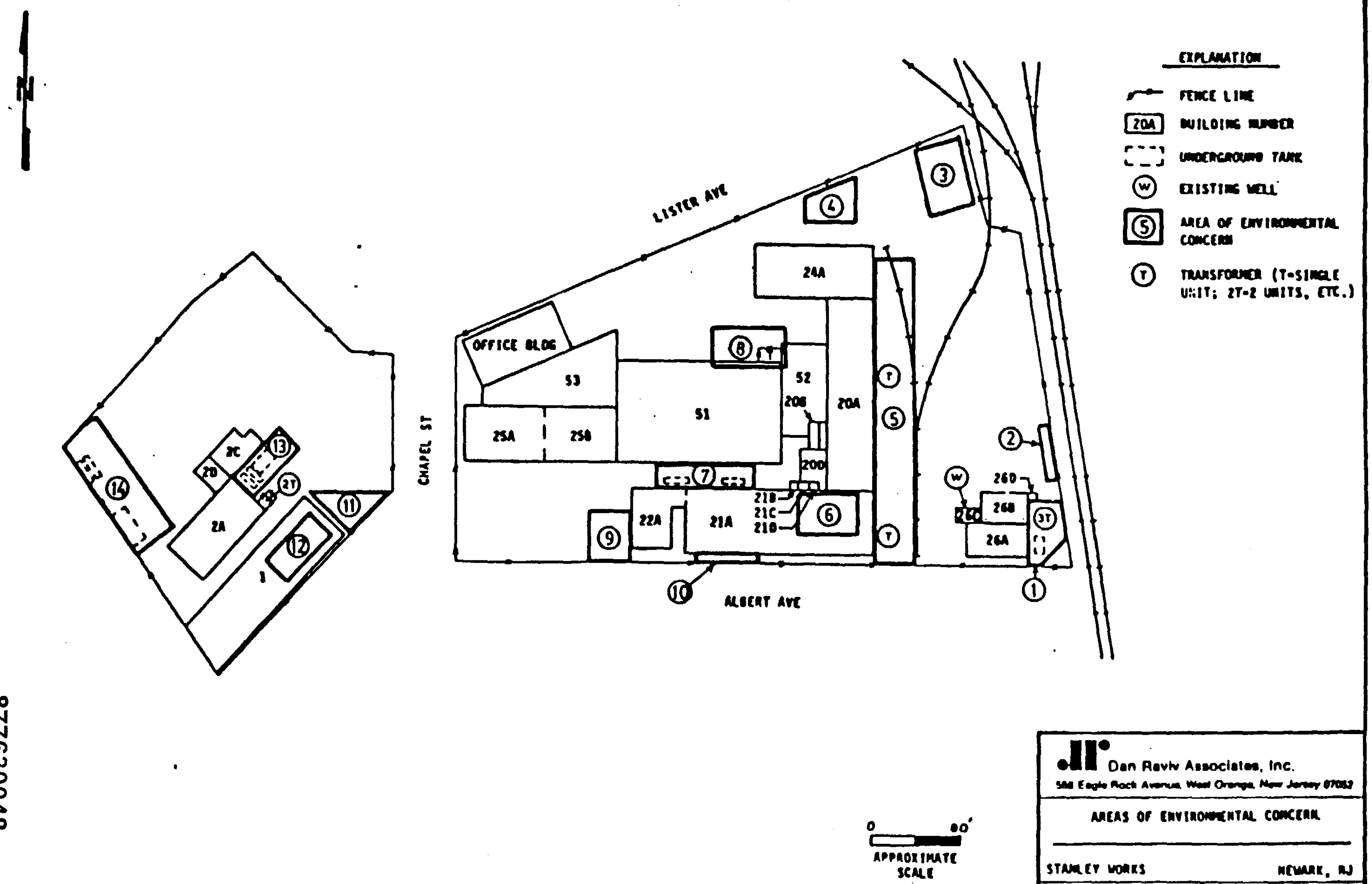
AREAS OF ENVIRONMENTAL CONCERN

Fourteen areas of environmental concern were identified based on a series of site visits, review of both past and present site operations and examination of existing sampling data. It should be noted that areas of concern do not necessarily indicate known or apparent areas of environmental problems. Rather, they are areas of the site where contaminants are potentially present and thus are appropriate for inclusion in the sampling program. The location of these areas is shown in Figure 14.1. Each area is listed in Table 1 and a rationale provided as to why the area was selected.

Table 1. Areas of Environmental Concern

Area of Environmental Concern	Rationale for Selection
1	Area of underground tank storage (10,000 gallon tank/#2 fuel oil) and area of known surface soil contamination with lead.
2	Area of reported oil spill.
3	Former area of waste storage and area of known surface soil contamination with lead.
4	Storage area for virgin materials.
5	Former waste disposal area and area of known surface soil contamination with lead.
6	Former lead pot area.
7	Area of both above ground tank storage (750 gallon tank/quench oil) and underground tank storage (1,000 gallon tank/quench oil and 1,000 gallon tank/#2 fuel oil).Area of apparent oil contamination.
8	Area of reported oil spill, area of known surface soil contamination with lead and area [1] of reported PCB transformer incident.
9	Area of possible coolant (Cimcool) [2] contamination.
10	Area of known surface soil contamination with lead and apparent oil contamination.
11	Area of known surface soil contamination with lead.
12	Area of apparent oil contamination.
13	Area of partial underground tank storage (12,000 gallon tank/#4 and #2 fuel oil) and area of known surface soil contamination with lead.
14	Area of underground tank storage (two 8,000 gallon tanks/ #2 fuel oil; one 10,000 gallon tank/#2 fuel oil).

1. In the mid 1970's, a transformer containing PCBs caught on fire which resulted in the failure of the top hatch of the unit. No records exist to indicate whether the soils were tested for PCB. No clean up was conducted since the release was limited to the area of the enclosure. The transformer was repaired and placed back in service with non-PCB oil.
2. According to the manufacturer, Cimcool is composed of up to 20% mineral oil, amine (most likely triethanolamine) and water.



Dan Raviv Associates, Inc.
566 Eagle Rock Avenue, West Orange, New Jersey 07052

AREAS OF ENVIRONMENTAL CONCERN

STANLEY WORKS NEWARK, NJ

Prepared By MZ / DDR	Date APRIL, 1985
Job No. 85C235	FIGURE 14.1

877630048

PROPOSED SAMPLING

The following sampling program is proposed in order to determine whether chemical contaminants exist within the fourteen areas of environmental concern. Proposed sampling locations are delineated on Figure 14.2. The types of samples to be collected and the analysis to be performed are summarized in Table 2.

Table 2. Proposed Sampling in Areas of Environmental Concern

Area of Environmental Concern	Sampling1 Location	Sample Description (Type/#Samples)	Analysis Requested
(1)	#30	Shallow Monitoring Well (soil/2-4) (water/1)	TPHCs, VOCs,Pb
(2)	#1	Backhoe Trench (soil/2-4)	TPHCs
(3)	#2	Backhoe Trench (soil/2-4)	TPHCs, VOCs, Pb
	#31	Shallow Monitoring Well (water/1)	TPHCs, VOCs, Pb
(4)	#7	Backhoe Trench (soil/2-4)	TPHCs, VOCs
(5)	#3	Power Auger Boring (soil/2-4)	TPHCs, VOCs, Pb
	#4, #5	Backhoe Trench (soil/ 2-4 per location)	TPHCs, VOCs, Pb
	#32	Shallow Monitoring Well (soil/2-4) (water/1)	TPHCs, VOCs, Pb
(6)	#6	Power Auger Boring (soil/2-4)	Pb
(7)	#11	Backhoe Trench (soil/2-4)	TPHCs, VOCs
(8)	#9	Backhoe Trench (soil/2-4)	TPHCs, VOCs, Pb, PCBs
	#10	Power Auger Boring (soil/2-4)	PCBs
	#33	Shallow Monitoring Well (soil/2-4) (water/1)	TPHCs, VOCs, Pb, PCBs
(9)	#12	Backhoe Trench (soil/2-4)	TPHCs, VOCs
(10)	#8	Power Auger Boring (soil/2-4)	TPHCs, Pb

Table 2. Proposed Sampling in Areas of Environmental Concern (continued)

Area of Environmental Concern	Sampling[1] Location	Sample Description (Type/#Samples)	Analysis[2] Requested
(11)	#36D	Deep Monitoring Well (soil/3-6) (water/1)	TPHCs, VOCs, Pb
	#36S	Shallow Monitoring Well (water/1)	TPHCs, VOCs, Pb
(12)	#13	Power Auger Boring (soil/2-4)	TPHCs, VOCs
(13)	#14, #15, #16	Power Auger Boring (soil/3-6 per location)	TPHCs, VOCs, Pb
(14)	#17, #18, #19, #20, #21	Power Auger Boring (soil/3-6 per location)	TPHCs, VOCs
	#38	Shallow Monitoring Well (soil/2-4) (water/1)	TPHCs, VOCs, Pb

1 See Figure 14.2 for sample locations

2 TPHCs - Total Petroleum Hydrocarbons
VOCs will be determined using a GC/MS scan for volatile organics.
PCB analysis will include a determination of both the total concentration and an analysis by Aroclor.

Number sequence 22-29 reserved for possible future soil borings.

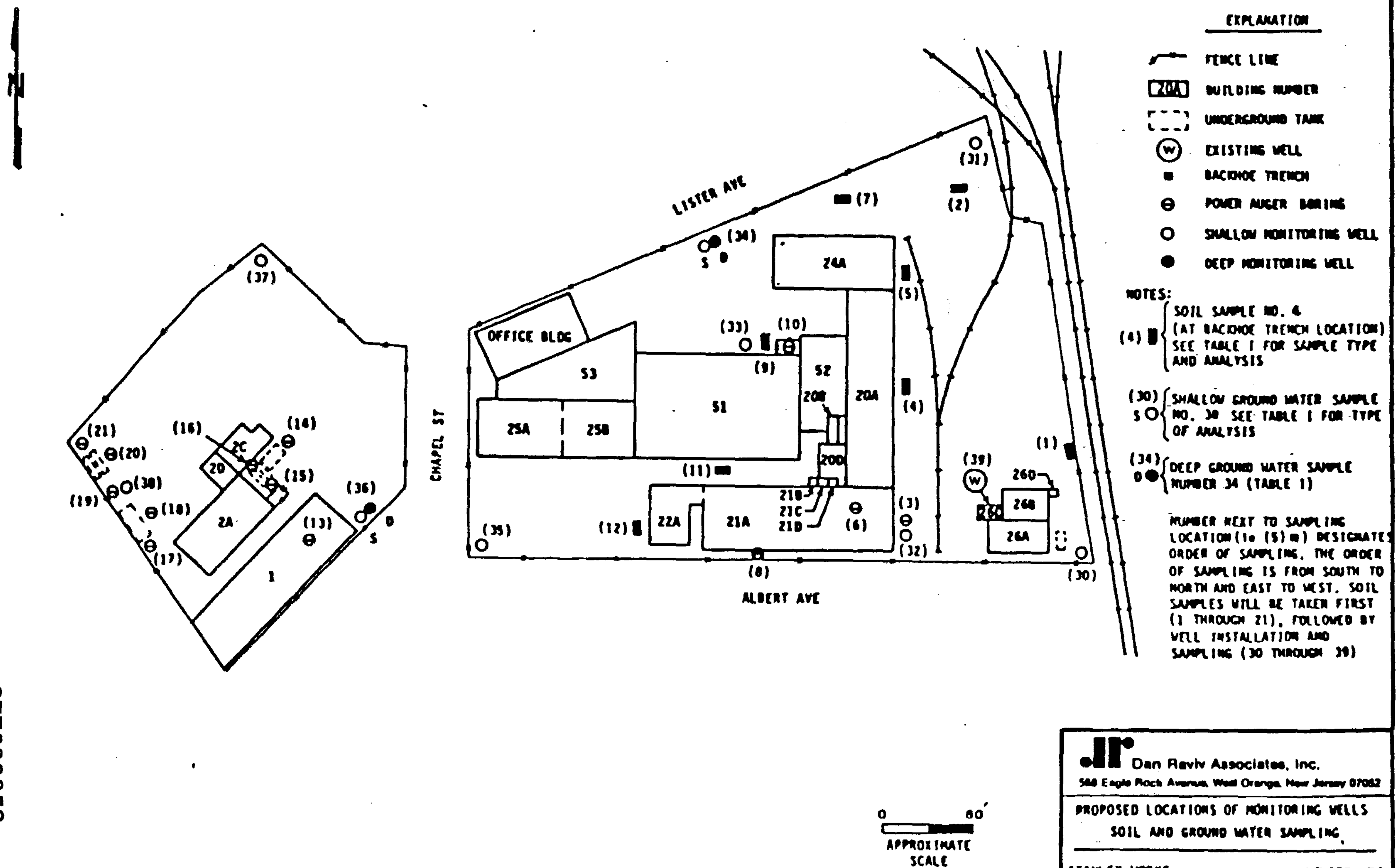
Table 2. Proposed Sampling in Areas of Environmental Concern (continued)

Area of Environmental Concern	Sampling1 Location	Sample Description (Type/#Samples)	Analysis2 Requested
(11)	#36D	Deep Monitoring Well (soil/3-6) (water/1)	TPHCs, VOCs, Pb
	#36S	Shallow Monitoring Well (water/1)	TPHCs, VOCs, Pb
(12)	#13	Power Auger Boring (soil/2-4)	TPHCs, VOCs
(13)	#14, #15, #16	Power Auger Boring (soil/3-6 per location)	TPHCs, VOCs, Pb
(14)	#17, #18, #19, #20, #21	Power Auger Boring (soil/3-6 per location)	TPHCs, VOCs
	#38	Shallow Monitoring Well (soil/2-4) (water/1)	TPHCs, VOCs, Pb

1 See Figure 14.2 for sample locations

2 TPHCs - Total Petroleum Hydrocarbons
VOCs will be determined using a GC/MS scan for volatile organics.
PCB analysis will include a determination of both the total concentration and an analysis by Aroclor.

Number sequence 22-29 reserved for possible future soil borings.



Dan Raviv Associates, Inc.

588 Eagle Rock Avenue, West Orange, New Jersey 07052

PROPOSED LOCATIONS OF MONITORING WELLS
SOIL AND GROUND WATER SAMPLING

STANLEY WORKS	NEWARK, NJ
Prepared By MZ/DOR	Date APRIL, 1985
Job No. 85C235	FIGURE 14.2

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ADDITIONAL SAMPLING AND ANALYSIS

In addition to the sampling and analysis described in Table 2 for the areas of environmental concern, samples from other portions of the facility will be obtained and analyzed. These will provide information necessary to characterize site hydrogeologic conditions. The type and nature of the additional samples to be collected and analyzed are presented in Table 3.

Table 3. Additional Proposed Sampling

Sampling Location	Sample Description (Type/#Samples)	Analysis Requested
#34	Shallow well (water/1)	TPHCs, VOCs
	Deep well (soil/4-6) (water/1)	TPHCs, VOCs
#35	Shallow well (water/1)	PP + 40[1]
#37	Shallow well (soil/4-6) (water/1)	TPHCs, VOCs
#32	Existing deep well (water/1)	PP + 40

1 PP + 40 = 129 USEPA priority pollutants plus 40 unidentified peaks.

To provide quality control, a selected number of soil and water duplicate samples will be collected and analyzed. Three soil and two water duplicates will be analyzed for the same parameters as the originally designated samples.

To test underground tank integrity, a number of borings will be placed around existing tanks (see Figure 14.2) which are either not currently in use or cannot be filled for testing without having substantial amounts of product left in them at the projected date of plant closure. Three tanks have been identified which can be filled and, therefore, will be Petrotite tested. These include a 10,000 gallon fuel oil tank on the east side of Building 26-A and two 1,000 gallon tanks located in the alleyway between Buildings 21 and 51 (see Figure 14.2). One of these tanks contains quench oil. The other contains #2 fuel oil.

Finally, the fluid in the ten transformers located on the site (see Figure 14.1) will be tested for PCBs. All available information suggests that PCBs are not in use. However, testing will be done to insure that this understanding is correct.

SAMPLING AND ANALYTICAL METHODOLOGY

DRAI protocols for monitoring well installation and soil and groundwater sampling will be followed. These protocols have been previously submitted to the NJDEP, Bureau of Industrial Site Evaluation.

WELL CONSTRUCTION

Boreholes will be augered or rotary drilled. Well construction will include PVC casing and screen. The wells will be air developed with further development, if necessary, by pumping or bailing prior to sampling. Well specifications are shown in Figures 14.3 and 14.4. All wells will be surveyed and water table/potentiometric data will be obtained.

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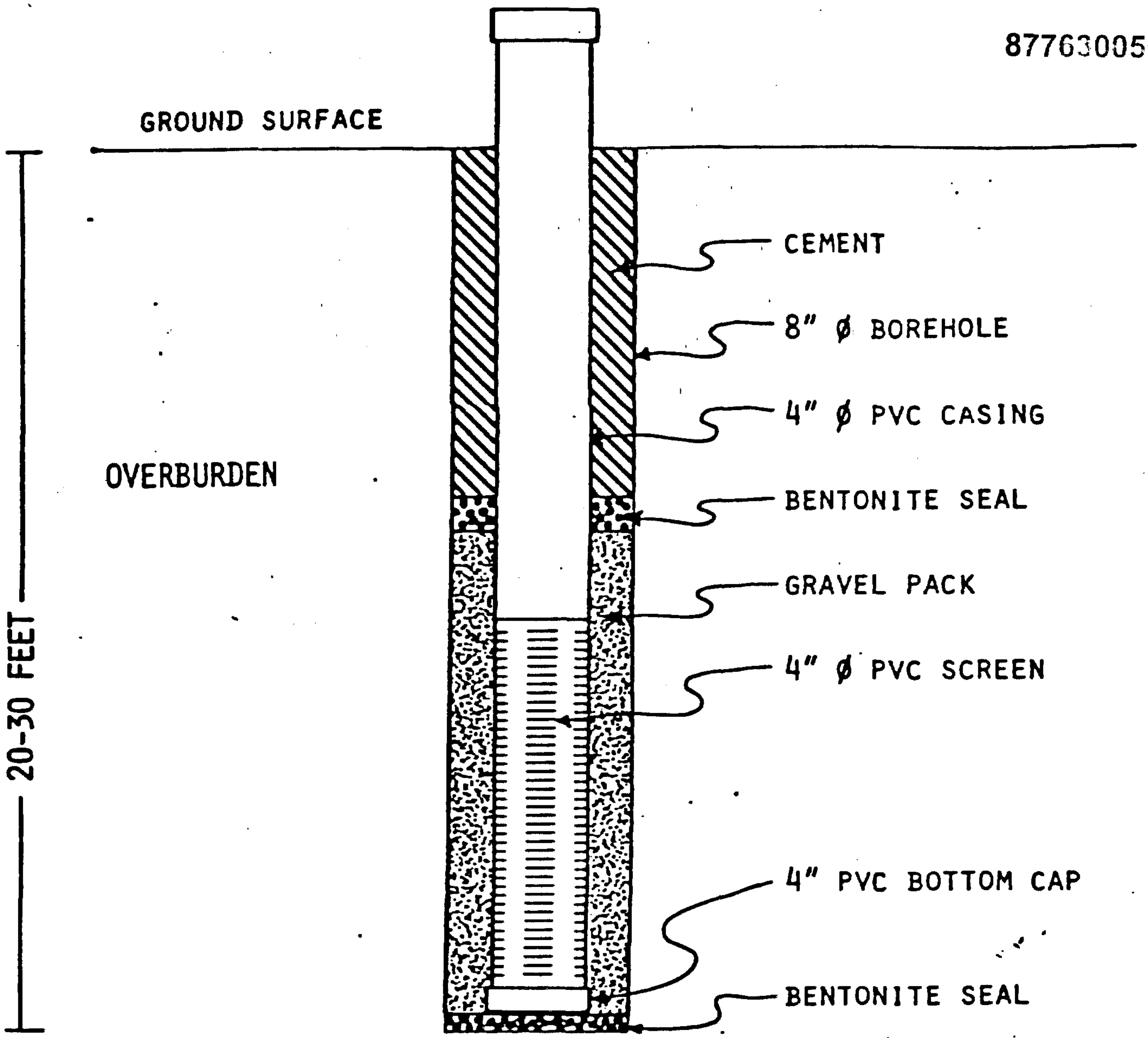

NOT TO SCALE

Dan Raviv Associates, Inc.
588 Eagle Rock Avenue, West Orange, New Jersey 07052

PROPOSED SPECIFICATIONS
SHALLOW AQUIFER WELL

STANLEY WORKS NEWARK, N.J.

Prepared By DJM	Date APRIL, 1985
Job No. 85C235	

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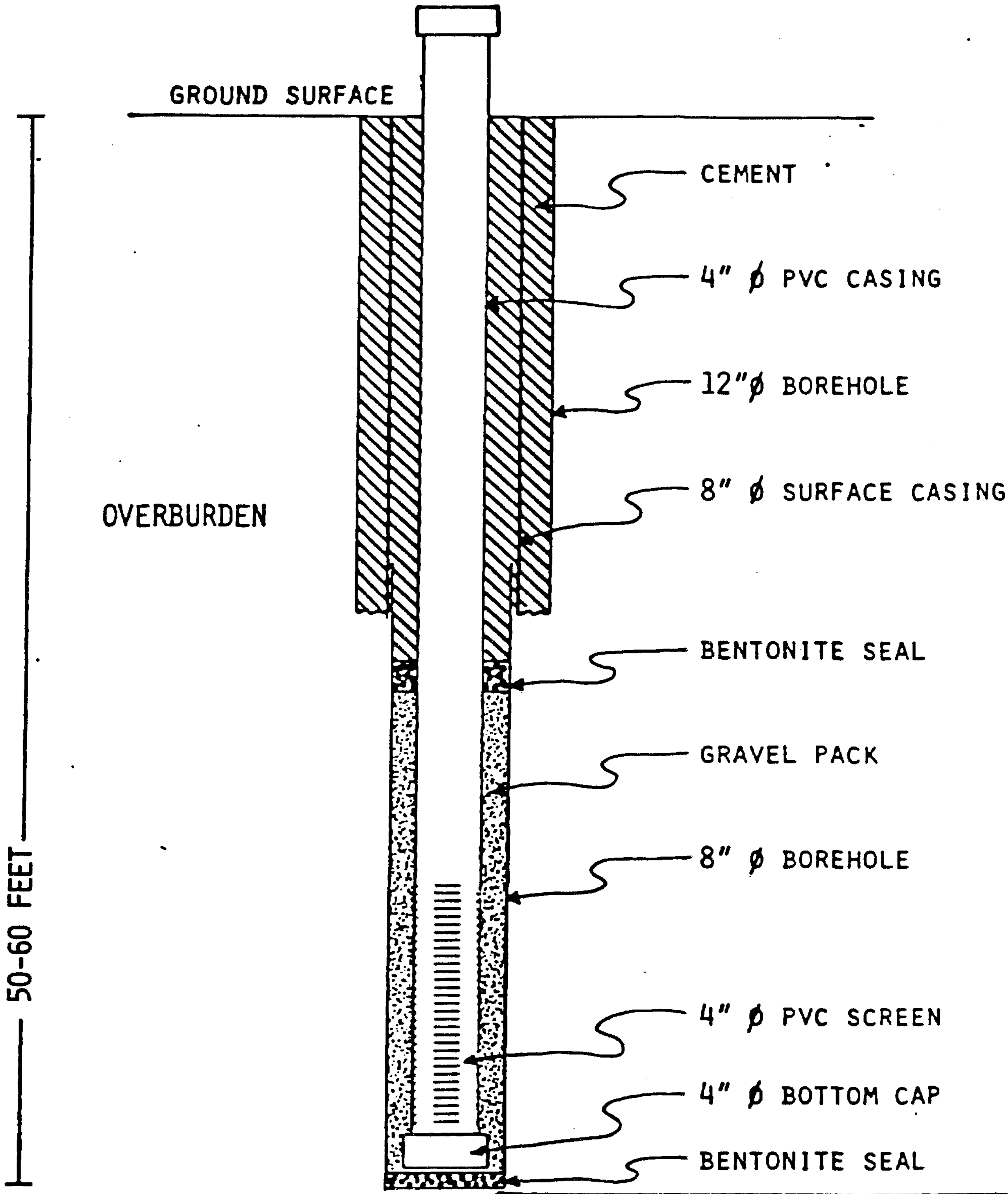

NOT TO SCALE

Dan Raviv Associates, Inc.
588 Eagle Rock Avenue, West Orange, New Jersey 07052

PROPOSED SPECIFICATIONS
DEEP AQUIFER WELL

STANLEY WORKS NEWARK, N.J.

Prepared By DJM	Date APRIL, 1985
Job No. 85C235	FIGURE [illegible]

Soil Samples

During the construction of monitoring wells, soil samples will be collected every two feet until the water table is encountered. Other soil samples will be taken at various intervals during backhoe trenching or power auger boring. Maximum anticipated depth with backhoe trenching and power auger boring will be 15 feet.

Sample Collection

Each sample container will be labelled and the method of collection and location recorded in a field log book. The samples will be placed in containers prepared and supplied by the laboratory. Strict chain of custody records and procedures will be followed. All samples for volatile organic analysis will be collected in duplicate. Field blank samples for both water and soil will accompany the field crew during sample collection.

Laboratory Selection

Baron Consulting, Orange, Ct. is presently awaiting decision on State of New Jersey certification. We plan on using Baron if certification is granted. However, if certification is not granted a laboratory, either certified by the State of New Jersey, a member of the USEPA contract lab program, or otherwise deemed acceptable to the ECRA program, will analyze all water and soil samples.

Analytical Methodologies

Details on analytical methodologies will be included in the laboratory QC/QA manual.

Stanley Tools

ECRA Case 85-178

Appendix 7

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DECOMMISSION/DECONTAMINATE- Question 15

The procedures to be used to decontaminate or decommission buildings/ equipment at Stanley Tools will be determined on a case by case basis and with the approval of the department. As manufacturing equipment is taken out of service, any process chemicals in associated tanks will be drained and placed in approved 55 gallon drums. These drums will be labeled with internal hazardous waste labels (if required) and will be placed in the hazardous waste storage area in the basement of Building 24-A. The tanks themselves will be flushed with an appropriate solvent and the washings will be collected and drummed and treated as a hazardous waste. Since most of the manufacturing equipment will be transferred to other Stanley locations, the majority of the equipment will not be scrapped.

If upon removal of equipment, floor areas show evidence of contamination, they will be appropriately scraped and cleaned with the residue tested to determine proper disposal method.

Walls, floors, and building exteriors will be inspected as equipment is removed. If necessary, these areas will be remediated with residue tested for proper disposal.

Asbestos insulation on site will either be repaired or removed.

SCA, Newark, New Jersey will be contacted to quote on disposal of wastes

Stanley Tools

ECRA Case #85-178

Appendix 8

ANALYTICAL RESULTS

Attached are copies of all soil, groundwater, and surface water sampling results, including any effluent quality monitoring conducted at the site during the operational history.

ECRA CASE - 85-178
STANLEY TOOLS - NEWARK
SURFACE SOIL ANALYSIS

SAMPLING DATE - 4/2/85

SAMPLE TYPE - SURFACE SOIL GRAB SAMPLE LESS THAN 3" DEPTH

SAMPLE LOCATION	METALS ANALYSIS, ppm	
	Lead (Pb)	Chromium (Cr^T)
1	357	80
2	821	270
3	4151	126
4	203	32
5	661	60
6	1153	33
7	504	137
8	3440	79
9	31008	155
10	792	62
11	1535	67
12	1210	78
13	118	55
14	141	62
15	1025	93
16	401	50

T = TOTAL CHROMIUM

The soil samples were also analyzed for Cadmium and Barium. These metals were not detected in any of the samples. The detection limits for Cadmium and Barium are 1.5 and 500 ppm, respectively.

jzz

Date: March 22, 1980

NEW YORK TESTING LABORATORIES, INC.

P.O. BOX 484, 81 URBAN AVENUE, WESTBURY, L.I., N.Y. 11590 • (516) 334-7770 • (212) 297-1449

REPORT OF TESTS

Client	—	80-58243 - Stanley Tools
Material	—	One (1) Waste Water Sample
Client's Order No.	—	46-3889
Identification	—	See Page Two (Sample Received 3/13/80)
Submitted for	—	Chemical Analysis

We find as follows:

(For results see the following page)

We certify that this report is a true report of results obtained from our tests of this material.

Respectfully submitted,

NEW YORK TESTING LABORATORIES, INC.

G. J. Horvitz, Chief Officer

To:

Stanley Tools
140 Chapel Street
Newark, N. J. 07105

Att: Mr. Jerry Ploehn

mg

FORM 100

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NEW YORK TESTING LABORATORIES, INC.

Lab No. 80-5824

	COMPOSITE SAMPLE
Color (Pt/Co Units)	25
Turbidity (NTU)	20
pH at 20 deg. C.	6.73

Results in mg/l

Total Solids	146
Total Volatile Solids	84
Total Mineral Solids	62
Total Suspended Solids	28
Volatile Suspended Solids	22
Mineral Suspended Solids	6
Emulsified Oil & Grease	14.0
Chlorides	18
Sulfate	15
BOD, 5 Day	34
COD	103
Total Organic Carbon	15
Sulfide	0.2
Sulfite	< 1
Surfactants (MBAS)	0.68
TKN as N	6.60
Ammonia as N	6.40
Nitrate as N	< 0.01
Nitrite as N	0.02
Ortho-Phosphate as P	0.10
Phenols	0.026
Antimony	< 0.08
Arsenic	0.008
Boron	< 1.0
Cadmium	0.003
Total Chromium	< 0.011
Copper	< 0.009
Iron	0.140
Lead	< 0.033
Mercury	< 0.0007
Nickel	< 0.018
Selenium	< 0.001
Silver	< 0.008
Tin	< 0.63
Zinc	0.017

< None detected, less than

SPILL PREVENTION CONTROL

AND

COUNTER MEASURES PLAN

(SPCC PLAN)

STANLEY TOOLS DIVISION

OF

STANLEY WORKS

(NEWARK PLANT)

ISSUED: FEBRUARY 24, 1976

REVISED: JUNE 4, 1980

SECOND REVISION: JANUARY 29, 1982

APPROVED BY: Orient E. LaPlante Jr.
2/5/82

ORIENT E. LAPLANTE, JR.
LICENSED PROFESSIONAL ENGINEER
STATE OF NEW YORK
LICENSE #053846

PREPARED BY ______
GERALD PLOEHN
PLANT ENGINEER

APPROVED BY Logan J. Birnie
LOGAN BIRNIE
PLANT MANAGER

877630064

SPILL PREVENTION CONTROL & COUNTERMEASURES

PLAN (SPCC)

neral Discussion

A. This plan is prepared in accordance with the requirements of Title 40, Chapter I, Subchapter D, Part 112 of the Code of Federal Regulations which deals with the prevention of the discharge of oil in harmful quantities of oil into the navigable waters of the United States.

B. Applicability Determination (Ref. Part 112.1)

1) The Newark Plant, by reason of its proximity to navigable waters, could reasonably be expected to discharge oil in "harmful" quantities* into those waters by way of storm drains should a failure develop in the oil storage system.

2) Part 112.1(d)(2) requires this plan since the Newark Plant has storage facilities in excess of 1,320 gallons of oil (approx. 10,000 usable storage and approx. 10,000 unusable storage in Yard A) partially buried.

3) Part 112.1(d)(3) exempts the Newark Plant from preparing an SPCC for underground storage since that storage is less than 42,000 gallons (actual is approx. 26,000 gallons). However, should this storage be increased beyond 42,000 gallons in the future, that storage must then be included in this plan within six months of completion, with implementation required within 1 year of facility completion.

C. Review Provisions (see 112.5(b))

1) This plan must be reviewed and evaluated at least once every 3 years from the effective date of part 112 which is June 10, 1974.

D. Amendment Control (see 112.5)

1) Part 112.5 requires that this plan be amended:

a) Whenever there is a change in facilities that would materially affect the potential for controlling spills (112.5(a)).

b) Whenever the three year review indicates inadequacies in the plan (112.5(b)).

c) Whenever the EPA Regional Administrator requires an amendment (112.4(e)).

2) Amendments in (a) & (c) above must be completed as soon as possible and implemented within six months. Amendments in (b) above must be completed within six months of the review.

*A harmful quantity is defined in CFR 40 Part 110 as an amount of oil that will leave a visible sheen on the water.

E. Plan Responsibility

Part 112.7 requires that the plan has full approval of management at a level with authority to commit the necessary resources for implementation. It is further required that a person be designated accountable for oil spill prevention. This person must report to line management.

F. Services of a Professional Engineer

Parts 112.3 (d) and 112.5(c) require that this plan and amendments be reviewed and certified by a registered professional engineer who shall attest that this SPCC plan has been prepared in accordance with good engineering practices.

II. Detailed Plan (Original Plan)

A. Facilities Description

1) There are two partially buried fuel oil storage tanks located in Yard A. The yard is surrounded by a chain link fence which is kept locked when the plant is not in operation.

a) The southernmost tank is not in use and will be permanently sealed by capping all openings and covering them with concrete.

b) The northernmost tank system is presently in use and is constructed as follows:

1) The tank is surrounded by an enclosure fabricated of reinforced concrete with 11" thick walls. The enclosure floor is also fabricated from reinforced concrete and the floor top face is 5'-2" below grade line. The enclosure walls measure 20'-2" x 12'-2" (inside) and are 7'-10" above grade. Six 3" drain holes are located on the perimeter of the enclosure 7'-4½" down from the enclosure top to the hole centerline. The tank is placed in the enclosure and the space between the tank and the enclosure is filled with sand up to 1 ft. from the top.

B. Spill Prevention System

1) The volume of the enclosure below the level of the drain holes is 1349 cubic feet (10,091 gal.). The tank, according to the attached drawing has a capacity of approximately 10,820 gallons. A tank leak, should it occur could cause an oil spill of approximately 7,312 gallons* (plus the volume of the tank support system which is unknown) by leakage through the drain holes. There is also the possibility of an additional several thousand gallon spill resulting from refilling the tank before detection of a leak that has previously filled the enclosure to the level of the drain holes.

*The effective volume of the sand is included in all calculations (by test the sand can absorb .348 ft.^{3} oil per ft.^{3}).

2) The concrete enclosure will provide adequate spill prevention after proper modification as follows. This modification will provide a sealed container capable of holding 15,357 gallons of oil.

   a) Attach stand pipes which reach to the enclosure top to all drain holes. The attachment is to be made leakproof with gaskets or other suitable material. Provide drain plugs at the level of the drain holes.

   b) Permanently seal all areas where pipes enter the enclosure (2 on south side). (These pipe fittings must be replaced, the exposed pipes cleaned, painted and reinsulated.

3) The main starter control of the oil pumping system is to be provided with a lock to prevent unauthorized activation.

4) An overfill warning system is to be provided on the tank.

5) Cover the ground around the outside of the enclosure with clean dry sand so that any spills can be easily detected.

C. <u>Spill Detection & Disposal Proc</u>.

1) Adequate tank leak detection will be provided by performing inspections immediately before and after the tank is filled.

2) This inspection is to be conducted as follows:

   a) Insert a dip stick (approx. 8' long) into each standpipe. Remove stick and inspect for oil or water. If either appears to be present, draw a sample via the plugs at the drain level and inspect the sample.

      1) If water only is present, allow it to drain slowly into the ground from each standpipe. Take frequent samples to insure no oil is present (Ref. 112.7(e) (2) (iii) (A,B,C).

      2) If enough oil is present to constitute a violation close the drain plugs and arrange for system drainage and legal disposal of the oil.

      3) If small amounts of oil are present such as would result from minor fill spills, etc., drain the standpipes into containers and have the mixture removed by a commercial disposal company.

3) In the event of a failure in the pipelines to the furnaces occurs, the pump is to be immediately shut down and locked. The spilled oil is to be covered with an absorbent material and the material swept up and disposed of.

4) All parts of the system are to be visually inspected for leaks during tank filling operations.

5) In the event of any spill that allows oil in harmful quantities to reach the storm drains, the following items must be accomplished:

   a) Notify the Plant Manager

   b) Take all possible steps to stem the flow to the storm drains by trenching and/or damming, etc.

6) Spills that do not reach the storm drains are to be covered with an absorbent compound immediately.

7) Whenever a single spill event causes 1,000 gallons or more to enter the storm drains or whenever 2 spill events of lesser magnitude allow "harmful" amounts of oil to enter the storm drains within a 12 month period, reports to the cognizant federal and state agencies will be made in accordance with part 112.4.

D. Plan Detail for Additional Storage Capacity

1) Additional Capacity

An additional above ground 1500 gallon quench oil tank is located next to Building 21 . The tank rests on two steel I beam cradles which are supported by a 4 inch thick concrete pad.

2) Spill Prevention

The tank is surrounded by an 8 in. thick 18 in. high retaining wall capable of containing the entire 1500 gallon contents of the tank. (Consideration has been given to existing columns within the wall). Storm water drainage is provided by a manually operated valve in the wall which is to be normally closed. Venting of the tank and location of the fill port provide for containment in case of over filling. All areas where pipes enter the enclosure are sealed.

3) Spill Detection & Disposal

   a) Over fill protection is provided by the fill port being visible during filling.

   b) Leak detection is accomplished by periodic inspection of the above ground tank and retaining area.

   c) In the event of a leak, some of the tank contents can be transferred to an existing underground tank. Any spilled quantity remaining in the retention area will be removed by a commercial disposal company.

d) All supply lines to and from the tank to processing pumps are contained inside the retention wall or have manual valving to shut down lines extending outside the retention area. (Those lines outside the retention area are normally not used unless attended during a transfer from the holding tank, 1500 gallon tank of this amendment, to the pre-existing process tank.

III. Inspection & Records (112.7,e)

A record of inspections is to be maintained which shows date, time and results. A copy of this record is to be included as part of this S.P.C.C. file and updated at the time of inspection.

IV. Personnel Training & Spill Prevention (112.7, e, 10)

The Plant Manager will insure that regular briefings of operating personnel are conducted at intervals frequent enough to assure adequate understanding of this plan.

ADDITIONAL INSTRUCTIONS AND

TRAINING OUTLINE - SPCC PLAN

Primary Objective

The main objective of this plan is to prevent oil spills that could possibly reach, via the storm system, the local waterways.

This is necessary, not only because of the possible danger to marine and wildlife, but because it is a requirement of the Environmental Protection Agency which could impose a severe penalty on Stanley in the event of a violation.

Secondary Objectives

The secondary objectives of this plan are as follows:

1) To provide for cleanup and disposal of oil in the event of a spill

2) To provide for proper reporting if spills occur

Why is Stanley-Atha Concerned?

We are concerned because we have, in yard "A", a storage tank that contains up to 10,000 gallons of #4 fuel oil which is specifically covered by the EPA Regulations.

What is Required of Atha?

These regulations require that a plan be developed to 1) prevent spills as much as possible and to 2) formulate procedures for cleanup of any spills that do occur.

The EPA also requires that all concerned be briefed on the plan.

When Does This Plan Go Into Effect?

The EPA Regulations concerning oil spills took effect on Jan. 10, 1974. This plan should have been in effect by Jan. 10, 1975. Therefore, this plan is to be implemented immediately.

How Do We Meet Our Primary Objective?

The present tank in yard "A", with minor modifications can be made adequate to prevent oil spills provided adequate inspection is performed.

The tank is surrounded by a reinforced concrete enclosure which can be made leakproof. The method for sealing the enclosure is described in the SPCC Plan.

Once the enclosure is made leakproof, it will be able to hold any oil that would come from a leak in the tank.

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The inspection procedure in the plan describes a method for determining if the tank has leaked or if the enclosure has filled with rain water.

If the inspections are properly done and all liquids promptly moved from the enclosure, we should be reasonably safe from oil spills.

How Do We Meet Our Secondary Objective?

The plan indicates the steps to be taken in the event of a spill and also requires that the proper people (within and outside of ~~Atha~~) to be contacted.

Who Is Responsible For Carrying Out This Plan?

Primary responsibility for carrying out this plan rests with the Plant Manager. However, the actual execution of this plan will be done by the Maintenance Dept. under the direction of the Manager of Mfg. Engineering. In addition, it is the responsibility of everyone at ~~Atha~~ to report oil spills when noted to insure prompt compliance with EPA Regulations.

What Do We Do If We See A Spill?

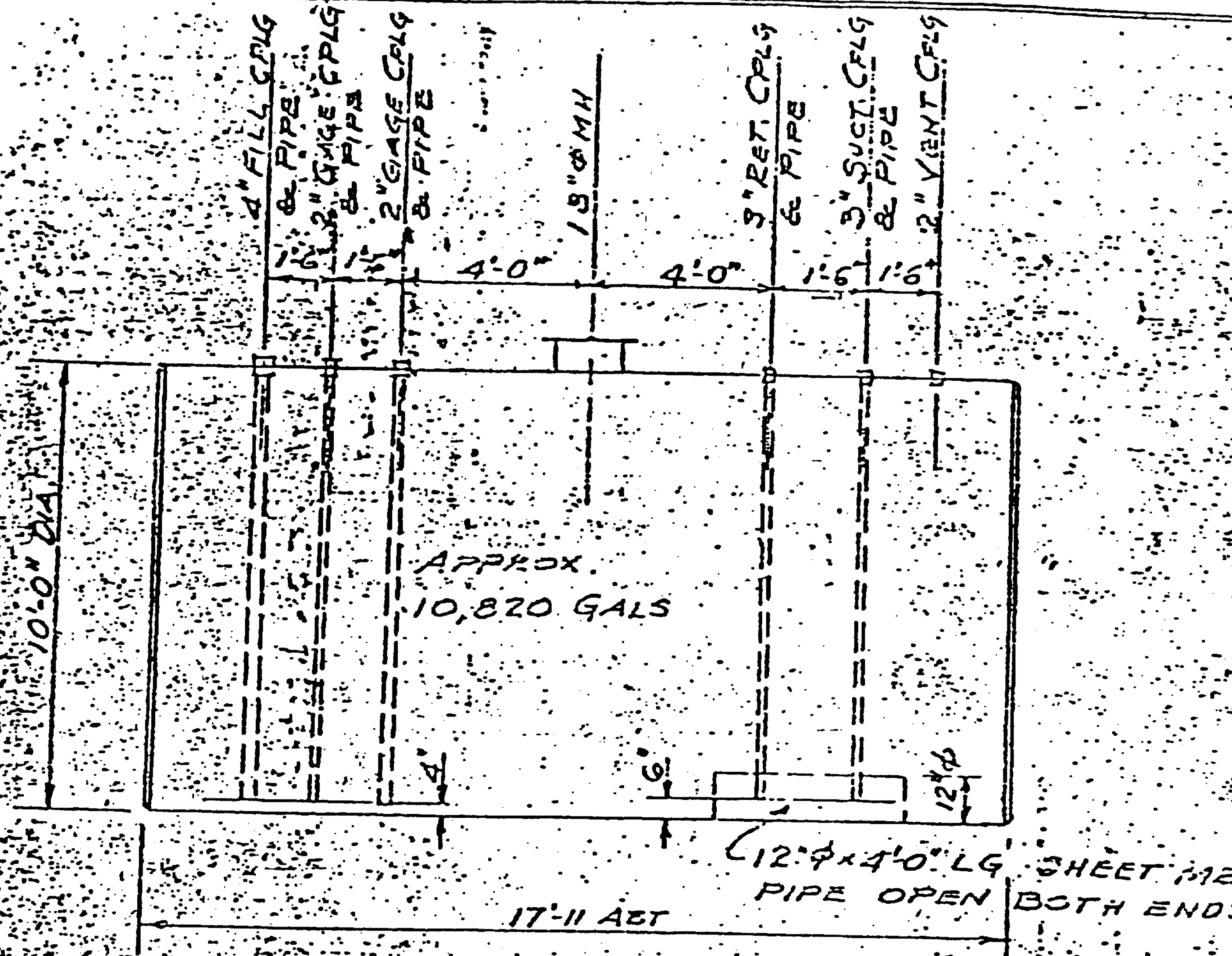
The person who sees an oil spill must immediately report this to his immediate supervisor who will, in turn notify the telephone operator.

The telephone operator will notify the following personnel:

1) The Plant Manager
2) The Manufacturing Engineering Manager
3) The Maintenance Manager

The Manufacturing Engineering Manager will insure that the provisions of the SPCC Plan are carried out. He will also have prepared the necessary reports to the EPA and N. J. State Agency concerned in accordance with Paragraph 112.4 (a) and (c) of the EPA Regulation. This report must be submitted within 60 days of the occurrence.

225 SOUTH AVENUE PLAINFIELD, N. J.	STANLEY TOOLS	CONTRACT NO. 1
	ADDRESS NEWARK, N.J.	DRAWING NO. D
DEPARTMENT IND. ENG'G	STRUCTURE NEW FORGE & MACHINE SHOP	SCALE 1/4" = 1'
REQUISITION NO. 7438	TITLE UNDERGROUND FUEL OIL TANK	DATE 6-26-5
		DRAWN BY F.W.



NOTE:-

1. ALL WELDED CONSTRUCTION, IN ACCORDANCE WITH UNDERWRITER'S LABORATORIES AND SO LABELED
2. SHELL THICKNESS = 1/4"
3. PROVIDE ALL CONNS AND INTERNAL PIPE AS SHOWN OR NOTED. ALL COUPLINGS SHALL BE 3000# STEEL
4. PAINT ONE EXTERIOR SHOP COAT OF RED LEAD, COVERED WITH ONE COAT OF ASPHALT PAINT.

AUG 6 1951

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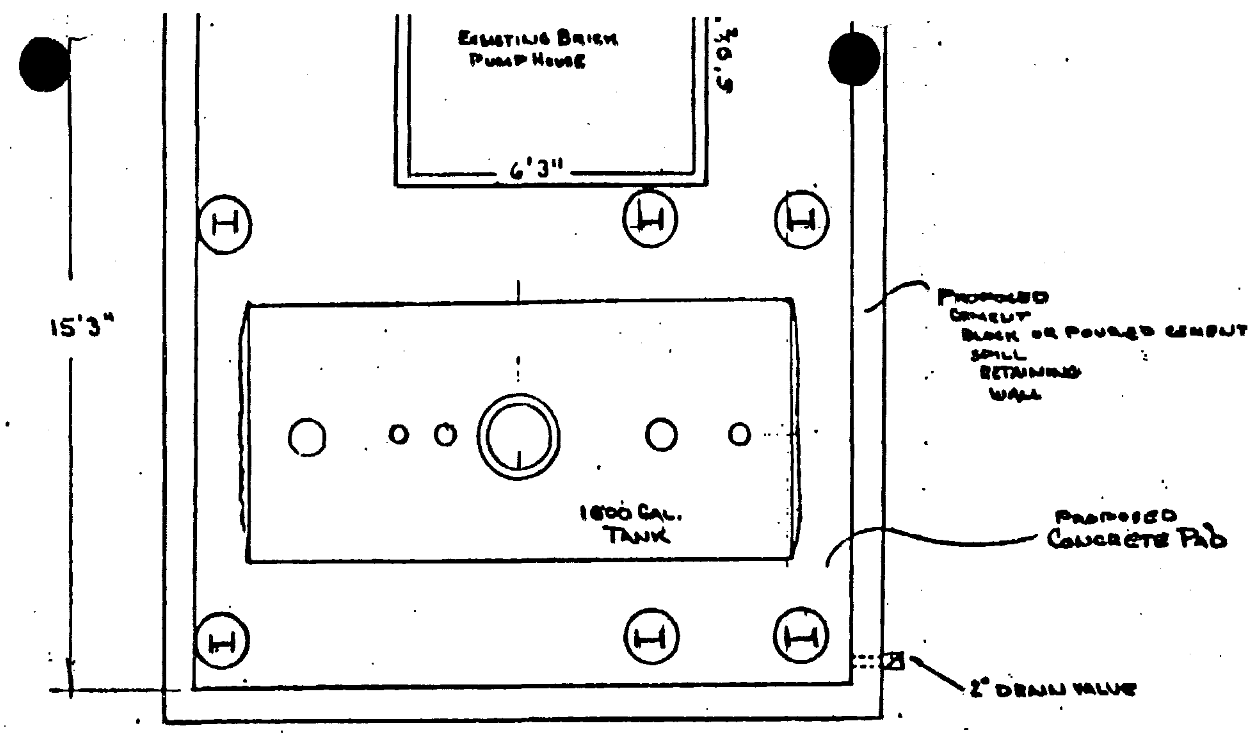
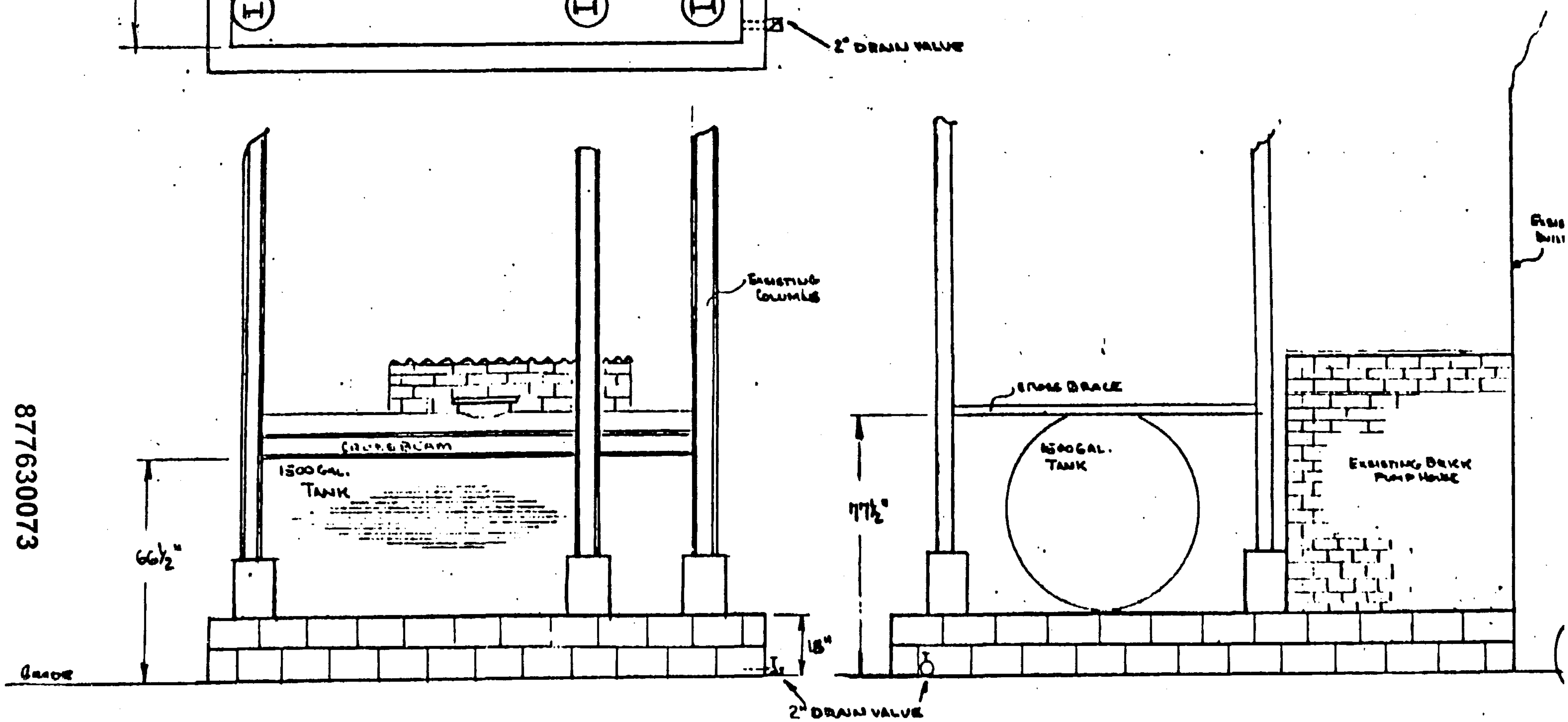
SPILL RETAINED VOLUME = 253 FT³
TANK VOLUME = 213 FT³
APPROX FULL TANK WT = 1800 LBS





877630073

Date____________

SPILL PREVENTION PLAN

INSPECTION DATA SHEET

YARD A TANK - 10,000 GAL. CAPACITY

DIP STICK TEST

NOTE PRESENCE OF OIL OR WATER

OIL________________________ WATER________________________

SAMPLE CONDITION OIL ________________ WATER ____________

DRAIN PERFORMED (WATER ONLY) ________________________

SAMPLES OIL FREE____

OIL PRESENT (NOTIFY PLT. ENGR).________________________

21-1 TANK 1500 GAL. CAPACITY

AREA INSPECTION ____

RETENTION AREA - CLEAN________________ OIL PRESENT__________

NOTIFY PLT. ENGR. (OIL PRESNT) ________________________

SPILL PREVENTION PLAN

INSPECTION DATA SHEET

DATE 8 31 83

INSPECTOR 2P

ARD A TANK - 10,000 GAL. CAPACITY

DIP STICK TEST

NOTE PRESENCE OF OIL OR WATER

OIL NO WATER YES

SAMPLE CONDITION OIL NO WATER YES

DRAIN PERFORMED (WATER ONLY) YES

SAMPLES OIL FREE YES

OIL PRESENT (NOTIFY PLT. ENGR). NO

21-1 TANK 1500 GAL. CAPACITY

AREA INSPECTION OK

RETENTION AREA - CLEAN YES OIL PRESENT NO

NOTIFY PLT. ENGR. (OIL PRESNT) NO

SPILL PREVENTION PLAN

INSPECTION DATA SHEET

DATE 7 20 83

INSPECTOR 2P

YARD A TANK - 10,000 GAL. CAPACITY

DIP STICK TEST

NOTE PRESENCE OF OIL OR WATER

OIL NO WATER YES

SAMPLE CONDITION OIL NO WATER YES

DRAIN PERFORMED (WATER ONLY) YES

SAMPLES OIL FREE YES

OIL PRESENT (NOTIFY PLT. ENGR). NO

21-1 TANK 1500 GAL. CAPACITY

AREA INSPECTION OK

RETENTION AREA - CLEAN YES OIL PRESENT NO

NOTIFY PLT. ENGR. (OIL PRESNT) NO

SPILL PREVENTION PLAN

INSPECTION DATA SHEET

DATE 6 31 83

INSPECTOR [illegible]

YARD A TANK - 10,000 GAL. CAPACITY

DIP STICK TEST

NOTE PRESENCE OF OIL OR WATER

OIL NO WATER YES

SAMPLE CONDITION OIL NO WATER YES

DRAIN PERFORMED (WATER ONLY) YES

SAMPLES OIL FREE YES

OIL PRESENT (NOTIFY PLT. ENGR). NO

21-1 TANK 1500 GAL. CAPACITY

AREA INSPECTION OK

RETENTION AREA - CLEAN YES OIL PRESENT NO

NOTIFY PLT. ENGR. (OIL PRESNT) NO

877630077

SPILL PREVENTION PLAN

INSPECTION DATA SHEET

DATE 5 20 83

INSPECTOR 2P

ARD A TANK - 10,000 GAL. CAPACITY

IP STICK TEST

NOTE PRESENCE OF OIL OR WATER

OIL NO WATER YES

SAMPLE CONDITION OIL NO WATER YES

DRAIN PERFORMED (WATER ONLY) YES

SAMPLES OIL FREE YES

OIL PRESENT (NOTIFY PLT. ENGR). NO

21-1 TANK 1500 GAL. CAPACITY

AREA INSPECTION OK

RETENTION AREA - CLEAN YES OIL PRESENT NO

NOTIFY PLT. ENGR. (OIL PRESNT) NO

Stanley Tools
140 Chapel Street
Newark City, Essex County

ECRA Case #85-178

Site Evaluation Submission

Transformers

Please see attached site map for location of transformers
Transformers will be tested for PCBs during the assessment program.

Location A

1. General Electric #L246604
   Class OA , 3 phase, 60 CY
   4160-480Y/277
   1500 KVA

Location B

1. Eisler 3756A1
   Class OA, 3 phase, 60 CY
   4160-480Y/277
   2000 KVA

Location C

1. Wagner #A9G1037
   Type HP L16, 3 phase
   Form 16W14GSR
   Spec T575 P5518
   4160-480
   1000 KVA

Location D

1. General Electric #G852006
   Class OA, 3 phase, 60 CY
   4160/2180/277

2. General Electric B978668
   Class OA, single phase, 60CY
   Type AS
   2400-4160/240-480
   167 KVA

Location E

1. General Electric B978930
   Class OA, single phase, 60 CY
   Type AS
   2400-4160/240-480
   167 KVA

2. General Electric B978930
   Class OA, single phase, 60 CY
   Type AS
   2400-4160/240-480
   167 KVA

Location F

1. Westinghouse #6365770
   Class OA, single phase, 60CY
   Type SL, Style 1646352B
   2400-4160/240-480
   250 KVA

2. Westinghouse #6365461
   Class OA, single phase, 60CY
   Type SL, Style 1646352B
   2400-4160/240-480
   250 KVA

3. Westinghouse #6365454
   Class OA, single phase, 60CY
   Type SL, Style 1646352B
   2400-4160/240-480
   250 KVA

Stanley Tools

140 Chapel Street

Newark City, Essex County

ECRA Case #85-178

SITE EVALUATION SUBMISSION

Building Utilization - 1985

Building - Floor	Current Utilization
1	forging
2A	storage of steel, product, forgings
2C/D	compressor,boiler,water distribution
20A-1	forging, paint
20A-2	storage of handles, cardboard
20A-3	vacant
20B	stairwell
20C	stairwell
20D	locker, shower room
21A-1	grinding, heat treating
21A-2	vacant
21B	vacant
21C	elevators
21D	vacant

Stanley Tools

ECRA Case 85-178

Building-Floor	Current Utilization
22A	machining, heat treating
24A-Basement	hazardous waste/chemical storage
24A-1	finishing,packing,shipping
24A-2	vacant
24A-3	vacant
25A-1	tool and die
25A-2	cafeteria
25B	tool and die
26A	boiler room
26B	compressor room
26C	vacant
26D	vacant
50	office
51	forging,grinding,paint
52	polish,assembly
53	maintenance

st|N-corr

State of New Jersey

Department of Environmental Protection

Christine Todd Whitman
Governor

Robert C. Shinn, Jr.
Commissioner

Exhibit B

2000

Ms. Jacqueline T. Wetzsteon
The Stanley Works
3810 S.E. Naef Road
Milwaukie, Oregon 97267-5698

RE: Stanley Tools, Inc. – Newark Facility
City of Newark, Essex County
ISRA Case No. E85178
1. Baseline Ecological Evaluation, Dated: August 24, 1999
2. Progress Report (April 1999 – September 1999), Dated: September 14, 1999

Dear Ms. Wetzsteon:

The New Jersey Department of Environmental Protection (NJDEP) has reviewed the above referenced reports submitted by ENSR on behalf of Stanley Tools. The August 24, 1999 Baseline Ecological Evaluation (BEE) identifies the potential ecological receptors, contaminants of ecological concern and contaminant pathways at the former Stanley Tools site. The September 14, 1999 Progress Report presents a summary of the activities conducted at the former Stanley Tools Newark site from April 1999 to September 1999.

Referenced below are the NJDEP's comments regarding the referenced reports.

A. <u>August 24, 1999 Baseline Ecological Evaluation</u>

Stanley Tools states that due to the isolation of the impacted soils from contact with ecological resources via direct contact or surface water runoff through capping of all open spaces at the site, the only media of concern is ground water.

Stanley Tools identified the Passaic River as the major off-site ecological habitat in the area of the former Newark facility. Stanley Tools also stated that there are no true terrestrial vegetative habitats or ecological resources present on or adjacent to the site. Stanley Tool states that the Passaic River is located at its closest point to the former Stanley Tools Newark Facility approximately 400 feet (western parcel). However, because the site is located on the inside of a large meander bend along the Passaic River, the river is located approximately 1,200 feet from the downgradient boundary of the site. Stanley Tools also states that surface runoff either discharges to the site storm sewer located in the northeast corner of the site or to drains located in the bordering streets. Stanley Tools states that no natural or man-made surface water drainage channels or conveyances exist on or adjacent to the site. The lower Passaic River near the site is a tidal estuary and is classified as Class-SE-3. Designated uses of Class-SE-3 waters are secondary contact recreation, maintenance and migration of fish populations, migration of anadromous fish populations, maintenance of wildlife and any other reasonable use.

No environmentally sensitive areas were identified on-site; however, Stanley Tools identified two environmentally sensitive areas in the vicinity of the site. Stanley Tools identified Surface Water (Passaic River) and Finfish Migratory Pathways as the two environmentally sensitive areas in the vicinity of the site.

Stanley Tools identified Benzene, Toluene and Xylene as Contaminants of Potential Ecological Concern (**COPEC**) for the western parcel of the site. Tetrachloroethene (**PCE**), Trichloroethene (**TCE**), cis-1,2Dichloroethene (**DCE**) and Vinyl Chloride were identified as COPECs for the eastern parcel of the site.

Two distinct Classification Exception Areas (**CEAs**) were established at the site in 1998. The western parcel CEA addresses the TPH contaminant plume in site ground water. The eastern parcel CEA addresses the elevated Volatile Organic Compounds (**VOCs**) in ground water.

Based on ground water modeling used for the development of the CEAs at the site, Stanley Tools determined that the COPECs will degrade naturally over time to concentrations below the NJDEP's Ground Water Quality Standards (N.J.A.C. 7:9-6) prior to reaching the Passaic River. In addition, Stanley Tools states that the current ground water remediation system operating on the western parcel controls the migration of the contaminant plume on this portion of the site.

Stanley Tools states that asphalt paving, and buildings covering the site prevent direct contact or migration of COPECs due to surface water runoff or erosion.

Stanley Tools states that because no complete exposure pathways exist between the site and the Passaic River, no ecological risk is posed by the site to ecological resources or environmentally sensitive areas. Stanley Tools states that a comprehensive ecological investigation is not warranted at the site.

NJDEP's Requirements:

The conclusions and proposal that a comprehensive ecological investigation is not warranted within the BEE are acceptable.

B. **<u>September 14, 1999 Progress Report</u>**

The progress report is acceptable. The QA/QC Laboratory Deliverables submitted with the progress report are acceptable. The NJDEP does not have any additional comments at this time.

C. **Additional Requirement**

1. Stanley Tools shall submit an updated Remedial Action Schedule that identifies the remaining remedial activities at the site. The updated Remedial Action Schedule shall include the projected dates for all reports to be submitted for the NJDEP's review. The Remedial Action Schedule shall be submitted within fifteen calendar days of receipt of this letter.

2. Stanley Tools only submitted one copy of the September 14, 1999 Progress Report for the NJDEP's review. Stanley Tools shall submit one additional copy of the September 14, 1999 Progress Report for the NJDEP's files. The QA/QC Laboratory Deliverables do not have to be re-submitted.

If you have any questions regarding this letter please contact ISRA Case Manager, Joseph Ludovico at (609) 633-1423.

Sincerely,

Joseph J. Nowak

Michael A. Justiniano, Supervisor fn
Bureau of Environmental Evaluation,
Cleanup and Responsibility Assessment

C: Joseph Marchesani, NJDEP/BGWPA
Chris Lacy, NJDEP/BEERA
Michael Festa, Essex County Department of Health
Andrew Kolesar, Thompson Hine & Flory
Stuart Brownstein, Ramida Rest Brown, Inc.
Richard Konkowski, ENSR

Ret to TC / Geo
8/1/95

Exhibit C

ENSR

Consulting • Engineering • Remediation

281 Centennial Avenue
Piscataway, NJ 08854
(908) 457-0500
FAX (908) 457-0550

July 28, 1995

Mr. Joseph Ludovico
New Jersey Department of Environmental Protection
Division of Responsible Party Site Remediation
401 East State Street, 5th Floor
CN 028
Trenton, New Jersey 08625-0028

Re: Remedial Action Report (RAR)
ISRA Remediation - Case No. 85178
Stanley Works, Newark, New Jersey

Dear Mr. Ludovico:

ENSR Consulting and Engineering (ENSR) is pleased to submit the attached July 1995 Remedial Action Report (RAR) for your review and approval. This RAR summarizes the ECRA/ISRA proceedings and pre- and post-remedial sampling events conducted over the past nine years by ENVIRON and ENSR on behalf of Stanley Tools, Inc. (Stanley).

Stanley is interested in selling the subject property and would appreciate obtaining NJDEP's prompt review of this document in anticipation of a no further action letter relative to soil remediation for this project. We would appreciate it if we could obtain your final approval by October 2, 1995. Please note, relative to the Declaration of Environmental Restriction (DER) prepared for the site, a draft DER was submitted to the NJDEP for review on November 29, 1994. Upon receipt of NJDEP's approval of the draft DER, the exhibits will be prepared and a final DER will be forwarded to you under separate cover.

Please call me if you have any questions.

Sincerely,

Richard J. Konkowski

Richard J. Konkowski
Principal

Ref. No. 6303-056(7)/RK-JL001.jlr

cc: R. Hoover/Stanley
A. Kolesar/Skadden Arps et al.
W. Duvel/Acton
File 6303-056-7.3.1

RECEIVED
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BUREAU OF UNDERGROUND STORAGE TANKS

Recycled Paper/Soy-based inks

877630086

The Stanley Works

New Britain, Connecticut

ENSR

Remedial Action Report for the Stanley Tools Facility Newark, New Jersey

ENSR Consulting and Engineering

July 1995

Document Number 6303-056-60R

EXECUTIVE SUMMARY

The former Stanley Tools site is located at 140 Chapel Street between Lister Avenue and Albert Avenue, in a predominantly industrial/commercial portion of the City of Newark, Essex County, New Jersey. The site is comprised of two parcels of land separated by Chapel Street. The western portion is approximately 1.8 acres; the eastern portion approximately 4.4 acres. Stanley Tools, a division of The Stanley Works, manufactured hand tools (e.g. hammers, sledges, mauls, and wedges) at this location from 1875 to 1985 when the facility was closed. At closing, the site was fully developed with about 90 percent of the property paved or under roof.

Site investigations required by ECRA/ISRA were initiated in March 1985 by ENVIRON who conducted four phases of investigation and some limited remediation. In September, 1993 ENSR took over the investigation and completed the remediation.

The investigation work involved:

- Detailed site reconnaissance;
- Review of aerial photographs;
- Review of available data related to local and regional geology and water usage;
- Determination of groundwater users within a one-mile radius of the site;
- Review of Sanborne and insurance maps from 1950, 1931 and 1908;
- Review of available site utility drawings;
- Installation of over 400 soil borings and test pits throughout the site;
- A soil vapor survey for a portion of the site;
- Collection and analysis of hundreds of soil samples for volatile organics, semi-volatile organics, PCBs, total petroleum hydrocarbons, and metals throughout the site;
- Inspection of building interiors and sampling and analysis of selected portions of interior wood-block floors;

- Installation of 40 monitoring wells, including 5 off-site wells;
- Ten rounds of samples from the monitoring wells covering the time period from November 1986 to May 1995.

The results of this investigation found that:

- The site consists of imported fill material with a thickness of 2 to 10 feet underlain by native deposits of interbedded sands, silts and clays. Bedrock (siltstone) occurs at approximately 120 feet below grade.
- Groundwater occurs at a depth from 4 feet to 13 feet below the surface with an average depth across the site of 8.2 feet.
- The groundwater occurs in three aquifers-- a water table aquifer, lower overburden aquifer and bedrock aquifer.
- Soil contamination is widespread throughout the site above the Residential and Non-Residential Direct Contact Soil Cleanup Criteria. The principal contaminants are metals (primarily lead) with selected areas of petroleum hydrocarbons and chlorinated VOCs. The principal VOC contaminants are: tetrachloroethene (PCE), trichloroethene (TCE) and cis-1,2-dichloroethene (cis-1,2-DCE). The VOCs were determined to originate from a deteriorated sewer line and sump on the eastern portion of the site.
- There is an area of free-phase petroleum hydrocarbons on the water table of the western parcel which has moved off-site. This LNAPL is believed to have originated from former USTs on the western parcel.
- There is an area of suspected DNAPL contamination under the eastern portion of the site which appears to have originated from the deteriorated sewer line and sump. The principal VOC contaminants are the same as those found in the soil in this area. Certain groundwater contaminants exceed NJDEP New Jersey Groundwater Quality Criteria - Class IIA (NJAC 7:9-6).
- There is no downgradient use of groundwater anywhere within a one-mile radius of the site. Area groundwater is not used for potable water supply nor for incorporation into products.
- There are no impacts to surface waters, wetlands, or sensitive ecosystems near the site.

Based on the results of the investigations, plans were formulated for addressing the soil and groundwater problems. The remediation activities conducted and ongoing are summarized as follows:

Soil Remediation

Given the generally widespread nature of the contamination, the presence of non-native fill already present on the site, and the nature of contamination (principally metals and petroleum hydrocarbons) the approach to remediation was to (1) excavate surficial soils (and selected hot spots to a greater depth), (2) recycle those soils by cold-batch asphalt processing, (3) return processed soils to the site by placing and compacting in the excavated areas (thereby forming a solid sub-base), and (3) capping the entire site (including those areas not excavated but which previously were paved) with a 2" top coat of conventional hot mix asphalt. VOC contaminated soils, which could not be processed into cold-batched material, pursuant to the air permit approved on November 3, 1994, were excavated and disposed of off-site as hazardous waste. The work related to soil remediation consisted of the following:

- excavation of approximately 3,000 cu. yds of contaminated soil
- cold-batch processing of over 2,700 cu. yds of contaminated soil
- off-site disposal of the following:
    - eighteen cubic yards of TPHC contaminated soil and 231 cubic yards of VOC/Lead contaminated soil was disposed of by S&W Waste, Inc. in South Kearny, New Jersey with ultimate disposal of VOC/lead contaminated soil at Stablex Canada, Inc. in Blainville, Quebec;
    - ten tons of undrained transformer equipment containing transformer oil was disposed of at ENSR Operations in Canton, Ohio;
    - approximately 165 gallons (3 drums) of transformer mineral oil, one 55-gallon drum of VOC contaminated water and one 55-gallon drum of No. 2 fuel oil was disposed of at Cycle Chem, Inc. in Elizabeth, New Jersey;
    - approximately 4,515 gallons of an oil and water mixture was disposed of at Lancaster Oil Corporation in Lancaster, Pennsylvania;

- 10 cubic yards of oil stained wood blocks, 260 gallons of VOC contaminated purge water, 2,500 pounds of contaminated soil, and 120 gallons of No. 2 fuel oil was also disposed of at S&W Waste, Inc. in South Kearny, New Jersey.

- paving of 189,000 square feet with 2" hot mix asphalt.

Groundwater Remediation

ENSR is currently conducting a semi-annual groundwater sampling program for the VOC contaminants of concern. Product recovery activities to address free product on the western parcel are ongoing. Specifically, ENSR:

- Installed passive skimmers to recover free-phase product from wells in the western parcel. Passive skimmers have recovered 76 gallons of product in 66 weeks;

- Installed an active skimming system, utilizing four recovery wells. The active skimming system has recovered 1,413 gallons in 29 weeks;

Building Demolition

While not required by ISRA, several buildings were demolished as part of the site remediation to make the site more useful and more attractive for sale. This work entailed:

- Demolition of six buildings amounting to approximately 18,000 square feet of space.

- Offsite disposal of:

  - 120 cubic yards of asbestos containing materials at the HMDC facility in North Arlington, New Jersey;

  - 440 cubic yards of concrete at SDG Aggregate, Inc. in Carteret, New Jersey;

  - 140 cubic yards of construction debris (including metal and wood) at the A. Fiore & Sons facilities in Kearny and Newark, New Jersey; and

  - 5600 pounds and 4 cubic yards of bird excrement at Cycle Chem, Inc. in Elizabeth, New Jersey.

The actual costs of this program have been $3,306,000. A summary breakdown of costs is as follows:

- Investigation ($525,900)
- Engineering ($555,900)
- Remediation ($1,290,000)
- Operation ($196,000)
- Monitoring ($576,700)
- Administrative ($161,500)

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1.0 INTRODUCTION

This Remedial Action Report (RAR) has been prepared by ENSR Consulting and Engineering (ENSR) on behalf of Stanley Tools Inc. (Stanley), for New Jersey Department of Environmental Protection (NJDEP) approval of remedial actions undertaken to address contaminated soil at the former Stanley Tools, Newark, New Jersey facility under the requirements of the Industrial Site Recovery Act (ISRA).

The cleanup was implemented in accordance with the cleanup plan approval letter issued by the NJDEP for the Stanley site on May 19, 1993 and in remedial action approval letters dated January 3, 1994; April 29, 1994; June 21, 1994; October 24, 1994; November 17, 1994; and March 22, 1995, as modified by various letters and other correspondence for the Stanley Tools, Newark facility (Case No. 85178).

This RAR presents and discusses all data and information collected in compliance with the Technical Requirements for Site Remediation, specifically, all data and information collected in compliance with N.J.A.C. 7:26E-6.3 (specific remedial action requirements) and N.J.A.C. 7:26E-6.4 (specific post-remedial action requirements).

The remedial phase of the Stanley site related to soil contamination primarily involved the excavation and recycling of the soils onsite using a cold batch processing technique. The soils were recycled into cold batch material and placed and compacted back into the excavations as a sub-base, utilizing the cold batch material as a cap. Finally, a 2-inch thick asphalt topcoat was placed and compacted over the entire site to serve as the finish to the cap. The remedial phase also included: 1) removal and off-site disposal of selected soil "hot spots", 2) removal and off-site disposal of VOC contaminated soil, 3) recovery and off-site disposal of free floating petroleum product from a portion of the groundwater, and 4) preparation and submittal of an Alternate Cleanup Level (ACL) Proposal for VOC contaminated groundwater.

2.0 HISTORICAL INFORMATION

Stanley Tools, a division of The Stanley Works, operated a hand tool manufacturing facility in Newark, New Jersey. Figure 2-1 depicts the Stanley property and the Areas of Environmental Concern (AEC) identified during site investigative activities. The facility manufactured products such as hammers, sledges, mauls, bars, and wedges. On March 15, 1985, The Stanley Works publicly announced the closure of the Stanley Tools facility in Newark, New Jersey. This action triggered review under the Environmental Cleanup Responsibility Act (ECRA), now ISRA.

2.1 Chronology of ECRA/ISRA Proceedings for Stanley Tools

Pursuant to the requirements of ECRA, Stanley submitted the General Information Submission (GIS) to the New Jersey Department of Environmental Protection (NJDEP) on March 20, 1985. Four phases of investigation were conducted at the subject site by ENVIRON on behalf of Stanley Tools: Phase I was implemented in October 1986; an interim phase was implemented during the fall of 1988; Phase II was implemented during the winter of 1990; Phase III began in November of 1991 and was completed in January of 1992; and Phase IV was implemented during the summer of 1993. Phase V, the remedial phase was initiated by ENSR in September 1993. ENSR's Phase V activities included annual and quarterly groundwater monitoring; installation and operation of a free product recovery system; pre-remedial soil sampling and excavation and post-excavation soil sampling; site regrading and installation of a cold batch asphalt cap; polychlorinated biphenyl (PCB) containing equipment decommissioning; building demolition; and asbestos survey and removal.

Table 2-1 summarizes key events and Stanley/ENSR submittals and NJDEP correspondence related to ECRA/ISRA compliance.

2.2 Historical Site Plans/Interpretive Aerial History

The facility was originally operated by the Atha Tool Company, beginning in 1875. Site operations at that time consisted of hammer manufacturing. In 1913, the property was purchased by Stanley Rule and Lever, for continued hammer manufacturing operations. In 1913, The Stanley Works merged with Stanley Rule and Lever, and site operations expanded to manufacturing hammers, sledges, mauls, and wedges. The Stanley Works operated the facility until 1985, when they publicly announced closure of the facility. The site is currently vacant.

TABLE 2-1

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
March 15, 1985	Stanley announces closure of Newark facility triggering ECRA
March 20, 1985	Stanley submits the General Information Submission to the New Jersey Department of Environmental Protection (NJDEP) pursuant to ECRA
May 24, 1985	Stanley submits Site Evaluation Submission (SES), including Sampling Plan to NJDEP
January 16, 1986	Initial NJDEP site inspection
February 26, 1986	NJDEP issues inspection report and provides comments on Sampling Plan
May 16, 1986	Stanley submits revised Sampling Plan to NJDEP
September 8, 1986	NJDEP conditionally approves revised Sampling Plan
October 1986	ENVIRON begins implementation of Phase I sampling
November 1986	ENVIRON conducts groundwater sampling event
Spring/Fall 1987	ENVIRON conducts interim groundwater investigations at risk
April 20, 1987	Stanley submits the ENVIRON Phase I Sampling Results Report to the NJDEP
December 1988	Stanley removes four underground storage tanks (USTs) at risk
June 8, 1989	NJDEP provides comments to Phase I Sampling Results Report and requires additional sampling
September 11, 1989	Stanley submits the ENVIRON Phase II Sampling Plan to the NJDEP
October 1989	Stanley removes five additional USTs
December 28, 1989	The ENVIRON Phase II Sampling Plan is conditionally approved by the NJDEP
January 1990	ENVIRON begins implementation of Phase II Sampling Plan
June 4, 1990	Stanley submits the ENVIRON Phase II Sampling Results Report, Soils Cleanup Plan and Phase III Groundwater Sampling Plan to the NJDEP

TABLE 2-1 (cont'd)

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
May 19, 1993	NJDEP issues conditional Cleanup Plan approval letter and requires a search for two inactive production wells, one of which was found; NJDEP approves a site-specific alternate cleanup level of 16,000 parts per million (ppm) for Zinc (Zn)
May 24, 1993	Stanley receives final conditional approval for the Revised April 1992 Soil Cleanup Plan and Ground Water Cleanup Plan
June 1993	ENVIRON conducts groundwater sampling event
July 6, 1993	Stanley submits ENVIRON Addendum to the April 1992 Revised Soil Cleanup Plan for Stanley Tools
August 20, 1993	ENVIRON conducts additional soil sampling in AEC 12
August 26, 1993	ENVIRON conducts soil sampling in vicinity of waste tank in Building 52 (AEC 46)
August 27, 1993	ENVIRON conducts additional soil sampling in AEC-8, AEC-17/25/39, and AEC 18; ENSR collects sample from AEC 22/35
September 8, 1993	Stanley submits ENVIRON June 1993 Annual Groundwater Sampling Report to NJDEP
September 1993	ENSR initiates negotiation with NJDEP for a revised Cleanup Plan
September/October 1993	ENSR conducts quarterly groundwater sampling event
October 6, 1993	Stanley, ENSR, and NJDEP met on site to discuss proposed approach to soil remediation
October 13, 1993	ENSR submits letter to NJDEP confirming meeting agreements reached on October 6, 1993
October 19, 1993	ENVIRON conducts additional soil sampling in AEC 12 and AEC 18; ENSR conducts additional soil sampling in AEC 1, AEC 12, AEC-14, AEC-16, AEC-17, 25, 39, and AEC 18.

TABLE 2-1 (cont'd)

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
October 1993	Stanley submits ENSR's Remedial Action Workplan (RAW) for soils to NJDEP; ENSR installs 4 recovery wells (RW-1 through RW-4) to expedite petroleum hydrocarbon recovery operations on the western parcel; Final NJDEP inspection of AECs 27/28 and AEC 34; Romoval of PCB containing equipment
November 1993	ENSR initiates weekly free product recovery
December 1993	Stanley submits ENSR September/October 1993 Quarterly Groundwater Sampling Report to NJDEP
January 3, 1994	NJDEP issues comment letter to June 1993 Annual Groundwater Sampling Report dated September 9 , 1993; October 6, 1993 Meeting Agreements Letter dated October 13, 1993; Revised Soil RAW Proposal dated October 19, 1993; and October 26, 1993 telephone conversation agreements regarding Amendment to April 1992 Groundwater Cleanup Plan Approval
January 18, 1994	Stanley and ENSR attend meeting with NJDEP to reach agreements on modifications to both the October 1993 RAW and NJDEP's conditional RAW approval letter dated January 3, 1994.
January 24, 1994	ENSR submits laboratory data packages for soil sampling activities conducted by ENVIRON in August and ENSR in October, 1993
January 26, 1994	Stanley and ENSR attend meeting with NJDEP to reach agreements on modifications to both the October 1993 RAW and NJDEP's conditional RAW approval letter dated January 3, 1994.
January 28, 1994	NJDEP issues comment letter regarding review of Stanley Tools Quarterly Groundwater Sampling Report and Groundwater Monitoring Plan Amendment dated December 1993
February 14, 1994	ENSR submits Addendum to October 1993 Remedial Action Workplan for Soils to NJDEP
March 11-12, 1994	ENSR collects delineation soil samples in AEC 5, AEC-17, AEC-20 and the Dry Well area

TABLE 2-1 (cont'd)

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
March 17, 1994	ENSR submits ENVIRON report entitled, "Results of August 1993 Investigation for Stanley Tools" to the NJDEP
April 1994	ENSR suspends passive free product recovery system and constructs active free product recovery system which begins operation in September 1994; ENSR installs two additional recovery wells (RW-5 and RW-6) for Phase II upgrade of the product recovery system on the western parcel utilizing a pneumatic product skimming system
April 7, 1994	ENSR submits results of Phase II product recovery systems operation to NJDEP in RAW Amendment letter; ENSR also submits results of additional soil delineation sampling in AEC 5, AEC 17/25/39, AEC 20, AEC 32, and the Dry Well
April 29, 1994	NJDEP issues letter regarding review of Stanley Tools RAW Amendment Letter dated April 7, 1994
May 1994	ENSR conducts quarterly groundwater sampling event; ENSR initiated site capping activities, including site clearing, excavation, and soil stockpiling
May 2, 1994	NJDEP issues permit for cold-batch processing of contaminated soils.
May 6, 1994	ENSR collects delineation soil sample from AEC-22/35
May 10, 1994	NJDEP Bureau of Water Allocation issues letter authorizing Stanley to discontinue search for second production well
May 18, 1994	NJDEP issues sampling requirements letter
June 21, 1994	NJDEP issues approval letter to ENSR's February 14, 1994 Addendum to October 1993 Remedial Action Workplan for Soils
June 23, 1994	ENSR collects additional sample from AEC-22/35 area
June 28, 1994	ENSR collects additional samples from AEC 32

TABLE 2-1 (cont'd)

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
June-August 1994	ENSR conducts delineation soil sampling activities in the sump structure, clay pipeline and pipeline conduit area on the eastern parcel; mobilized for and conducted cold batching activities
July 1994	ENSR initiates soil excavation and cold-batch asphalt processing. ENSR suspends soil excavation/cold-batch operation pending resolutions of contractor problems
July 27, 1994	NJDEP issues letter regarding free product recovery system
Mid-August 1994	ENSR conducts quarterly groundwater sampling and initiates free-phase product recovery (via passive skimmers)
August 26, 1994	ENSR submits Remedial Action Workplan Addendum to NJDEP detailing the results of investigative and remedial activities related to the AEC-8 Pipeline Conduit, Sump and Clay Pipeline; re-initiates passive free product recovery as required by NJDEP
September 6, 1994	Stanley Tools' Annual Groundwater Sampling Report submitted
September 20, 1994	Telephone conference call with NJDEP regarding RAW addendum for AEC-8 dated August 26, 1994
October 3-6, 1994	ENSR conducts additional RI/RA work on the "clay pipeline" in and around Area of Environmental Concern (AEC) 8 collecting additional delineation and post-excavation samples
October 24, 1994	NJDEP issues Remedial Action Workplan Addendum conditional approval letter for AEC-8, dated August 26, 1994
October 25, 1994	ENSR submits letter Remedial Action Report and Proposal for Further Remediation to NJDEP for additional RI/RA work completed on the "clay pipeline" in and around AEC 8

TABLE 2-1 (cont'd)

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
November 1994	Stanley tools submits draft Declaration of Environmental Restriction (DER) to NJDEP for review; Stanley submits "cost difference analysis" to NJDEP; ENSR completes excavation and cold-batch asphalt processing
November 3, 1994	NJDEP approves air pollution control permit application approval for the operation of an exhaust ventilation system associated with the operation of the pugmill mixer on site (Application # 1-94-4138) and issues certificate for continued cold-batch processing of contaminated soils.
November 17, 1994	ENSR receives NJDEP response letter to Stanley Tools' RAR and proposal for additional remediation dated October 25, 1994
November 21-23, 1994	ENSR conducts quarterly groundwater sampling and collects additional delineation soil samples in the sump structure/clay pipeline area
December 1994	ENSR provides final asphalt capping on western parcel
December 1, 1994	ENSR proposes ACLs for VOC contamination in groundwater
December 8, 1994	ENSR collects post remediation samples in the sump excavation beneath Building 20A; ENSR proceeded with clay pipeline removal activities in AEC 8; site capping of western parcel was completed
December 22, 1994	NJDEP issues conditional approval for Stanley to discharge purged groundwater onto the ground in AEC-8
January 1995	ENSR completes clay pipeline removal activities in AEC 8; ENSR conducted remedial activities to repair leak in vicinity of "1.5-Inch Pipeline"
January 9, 1995	ENSR submits August 1994 Quarterly Groundwater Sampling Report to NJDEP
January 16, 1994	ENSR submits workplan to the NJDEP for the investigation of the onsite production well

TABLE 2-1 (cont'd)

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
January 24, 1995	NJDEP issues comment letter regarding Stanley Tools Annual Groundwater Sampling Report dated September 6, 1994
January 31, 1995	NJDEP issues comment letter regarding ENSR's Alternate Cleanup Level Proposal dated November 1994 and request information to establish a Classification Exception Area for the Stanley Tools site
February 1995	ENSR conducts quarterly groundwater sampling event
February 3, 1995	ENSR submits Remedial Action Report/Remedial Action Workplan Addendum for work ENSR and Stanley have completed related to VOC soil contamination from the "clay pipeline" located in and around AEC 8 on the eastern parcel
March 2, 1995	ENSR submits letter response to groundwater sampling requirements in NJDEP's January 24, 1995 letter
March 3, 1995	ENSR submits letter request to discharge purged groundwater at the Stanley site
March 22, 1995	NJDEP issues comment letter regarding review of August 1994 Quarterly Groundwater Sampling Report; Bedrock Aquifer Investigation workplan dated January 16, 1995; RAR/RAW Addendum dated February 3, 1995; January 1995 Stanley Tools Progress Report dated February 15, 1995; March 3, 1995 letter request to discharge purged groundwater; ENSR receives NJDEP approval to discharge purged groundwater to the ground surface
April 7, 1955	ENSR collects samples along 1.5-inch pipeline on the Eastern Parcel
April 17, 1995	ENSR resumed placement and compaction of cold-batch on eastern parcel
April 19, 1995	NJDEP issues comment letter to ENSR February 1995 and March 1995 Progress Reports and Revised Schedules
April 26, 1995	ENSR completed site capping of eastern parcel
May 1995	ENSR initiates bedrock aquifer investigations

TABLE 2-1 (cont'd)

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
May 16, 1995	NJDEP issues letter conditionally approving semi-annual groundwater sampling plan
May 18, 1995	ENSR submits results of 1.5-inch pipeline investigations
May 23-24, 1995	ENSR conducts first spring semi-annual groundwater sampling event
June 1995	ENSR continues active free product recovery activities; ENSR completed the off-site disposal of VOC and TPHC contaminated soils generated during the remediation of the pipeline conduit, sump structure and clay pipeline in AEC 8

In the May 19, 1993 cleanup plan approval letter, NJDEP requested that Stanley provide legible copies of Sanborn and historic site maps which would illustrate AEC 8 piping locations in an attempt to identify the origin, function and destination of pipes transversing AEC 8. ENVIRON subsequently provided the NJDEP with copies of Sanborn maps for several dates including 1908, 1931, 1950, 1973, and 1988, and a copy of a 1983 Insurance Map and Site Plan in a June 15, 1993 progress report submittal.

Information related to aerial photographs were previously submitted to NJDEP in documents listed on Table 2-1.

TABLE 2-1 (cont'd)

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
December 12, 1990	Stanley receives draft Groundwater Sampling Plan Approval and Soil Cleanup Plan Disapproval from NJDEP
December 20, 1990	Stanley sends NJDEP proposed agenda items for meeting on Newark site
January 3, 1991	Stanley sends additional information requested by NJDEP on proposed agenda items
January 8, 1991	Stanley, ENVIRON and NJDEP meet to discuss sampling and cleanup strategies for Newark site
February 20, 1991	Stanley receives request for submission of revised Phase III Sampling Plan
March 15, 1991	Stanley submits proposed Phase III Sampling Plan prepared by ENVIRON
May 1991	ENVIRON begins implementation of soil gas survey
October 10, 1991	Stanley receives conditional approval for Phase III Sampling Plan from NJDEP
October 30, 1991	Stanley submits agenda for field meeting with NJDEP on sampling issues, scheduled for November 4, 1991
November 1991	ENVIRON implements the Phase III Sampling Plan
November 4, 1991	NJDEP cancels field meeting; ENVIRON submits letter to NJDEP on tentative commencement of field work
December 1991	ENVIRON conducts groundwater sampling event
January 1992 - November 1993	Free phase product is recovered from MW-15, MW-16, MW-29 & MW-36 on a biweekly basis by ENVIRON and Stanley Tools; ENVIRON conducts groundwater sampling event (January 1992)
April 1992	Stanley submits the Phase III Sampling Results Report, a Revised Soil Cleanup Plan, and a Ground Water Cleanup Plan
October 28, 1992	NJDEP issues Draft Cleanup Plan Approval

3.0 PHYSICAL SETTING

3.1 Locality

The former Stanley Tools site is located at 140 Chapel Street between Lister Avenue and Albert Avenue, in the City of Newark, Essex County, New Jersey. The facility is located on two parcels of land separated by Chapel Street. The western portion is approximately 1.8 acres in size and the eastern portion is approximately 4.4 acres in size. The approximate site location is depicted on the Newark, New Jersey 7.5 Minute Topographic Quadrangle (Figure 3-1). The site longitude is approximated to be 740820; site latitude is approximated to be 404412.

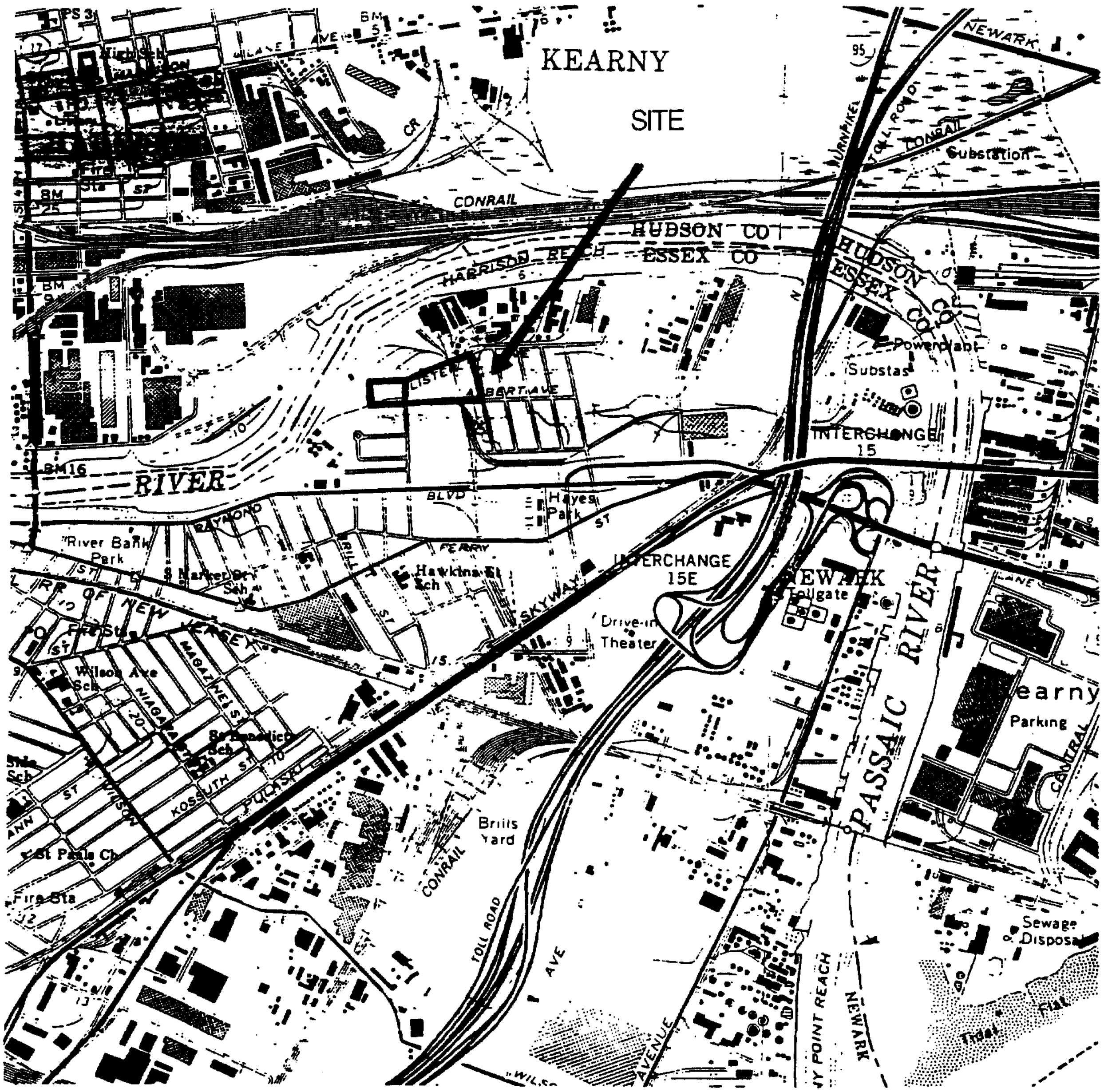
The surrounding area consists mostly of heavy industrial operations and warehousing. A Reichhold Chemical Corporation plant is east of the site. South of the Stanley site are a warehouse facility and a container storage facility. Other commercial businesses and residences are located on Albert Avenue South-Southwest of the site. West and north of the site are a container storage facility and an asphalt manufacturing plant.

3.2 Site Soils

The Newark area lies within the Piedmont Plain physiographic province. The area is characterized by relatively flat lowland, with tidal marshes in undeveloped areas and approximately 10 feet of fill soil and debris at the surface in developed areas. The Passaic River lies immediately to the north of the site and flows generally to the south. Land-surface altitude in the area increases gently to the northwest. Approximately three miles to the northwest are low ridges that trend in a northeasterly direction. The underlying soil at the site is comprised mostly of a silty-clay sand.

3.3 Topography

General site topography is depicted on the United States Geologic Survey (USGS) topographic quadrangle that shows the site location in Figure 3-1. The existing post-remedial site topography is shown on the boundary and topographic map prepared for the site in Section 5.7 (Permanent Remedial Action Structures). In general, the ground surface elevation on the western parcel varies between 7.5 and 12.5 feet and slopes towards the catch basin in the center of the parcel. The ground surface elevation on the eastern parcel varies between 13.5 and 9.5 feet and slopes away from the facility buildings toward the corner of Chapel Street and Albert Avenue on the southwest portion of the site; to the northwest toward Lister Avenue on the northern side of the



SOURCE: USGS 7½ Minute Topographic Quadrangle, Elizabeth and Jersey City, New Jersey

SCALE

0 1/4 1/2 1 MILE

N

ENSR

ENSR Consulting and Engineering

FIGURE 3-1

SITE LOCATION MAP

Stanley Works - Newark, New Jersey

DRAWN: CL	DATE: June 23, 1995	PROJECT NO.: 6303-056	REV 2
FILE NO.: FIG1-1.RPT	CHECKED: KMW		

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facility buildings; and to the east-northeast toward Lister Avenue at the rear of the property.

3.4 Local and Regional Geology

The site is located in the Piedmont Physiographic Province of New Jersey. The site is underlain by fill material, which overlies Pleistocene deposits of glacial sands, silts, and gravels. The Pleistocene deposits, in turn, overlie the Triassic Passaic Formation (bedrock). The Passaic Formation is composed mostly of soft red shale to the south near the Elizabeth line; to the north and northeast (near Belleville), it is principally sandstone with interbedded shale.

3.5 Hydrogeology

Two major aquifers exist in the area: 1) unconsolidated deposits, principally stratified glacial deposits; and 2) fractured bedrock (the Passaic Formation). The unconsolidated deposits contain two water-bearing zones directly beneath the site.

The unconsolidated deposits in the vicinity of the Stanley Tools facility extend from ground surface to a depth of approximately 120 feet. The characteristics of the two water-bearing zones within this hydrologic unit may be summarized as follows: a shallow water-bearing zone within the uppermost 20 feet in depth below land surface, consisting of fine-grained clayey sand, and a lower unconsolidated water-bearing zone at depths ranging between 40 and 70 feet below ground surface consisting of fine to medium grained sand.

The depth to groundwater measured at 38 on-site monitoring wells and six recovery wells ranges between 4 to 12 feet below the ground surface. In general, groundwater flows in an easterly direction across the site towards the Passaic River. Based on information obtained from wells screened in the water table aquifer, the general flow direction of the water table aquifer has two components, southeast in the western portion of the site and northeast in the eastern portion of the site, with an average hydraulic gradient of 0.0006. The general flow direction of the lower aquifer is to the southeast with an average hydraulic gradient of 0.002. An evaluation of historical data indicates that groundwater elevation typically fluctuates based upon seasonal precipitation variations and atmospheric pressure systems. Figures 3-2 and 3-3 show the groundwater elevation of the water table aquifer and lower aquifer, respectively.

3.6 Surface Waters and Wetlands

The majority of the subject site is paved and/or covered with structures; no surface waters or wetland areas have been identified on-site. Major surface waters in the vicinity of the site include the tidal Passaic and Hackensack Rivers. As shown in Figure 3-1, the Stanley Tools facility is situated on the inside of a large meander bend along the Passaic River. The river flows in an easterly direction north of the site, then turns in a southerly direction approximately 2,000 feet to the east of the site. The facility lies approximately 400 feet from the river at its closest point. The Hackensack River is approximately one mile east of the site.

Based on a discussion with the City of Newark Engineering Department, the portion of the facility located on the east side of Chapel Street is within the 500-year flood plain and approximately 15 feet above mean sea level. On the west side of Chapel Street the facility is within the 100-year flood plain and approximately 10 feet above mean sea level.

Based on a review of the National Wetlands Inventory Map for the Elizabeth, New Jersey Quadrangle, the closest mapped wetland area is the Passaic River which is designated as an Estuarine Subtidal Open Waterbody (E1OW). See Figure 3-4 for the wetlands map of the site area on a USGS 7.5 minute topographic quadrangle.

3.7 On-Site Construction Boring Logs

Prior to Stanley Tools, the facility was originally operated by the Atha Tool Company, beginning in 1875. No boring logs relating to site construction are known to exist.

3.8 Land Use

The Stanley Tools facility is located in an area that has experienced primarily heavy industrial usage for many decades. Manufacturing and chemical companies have existed historically in this area (ENVIRON 1990), and are known to have used a variety of organic chemical constituents in their operations. In general, land use surrounding the site is primarily industrial, with some commercial businesses, and residential apartment complexes to the south-southwest of the site.

Land use surrounding the Stanley Tools facility continues to be primarily industrial. Several industrial facilities surrounding the Stanley Tools facility use a variety of organic and inorganic chemical constituents in their manufacturing processes and/or products. Those that used metals in their operations were noted by ENVIRON Corporation (ENVIRON) in their 1992 report. The report states, "Several industrial facilities in the vicinity of Stanley Tools are believed to have used a variety of heavy metals. General Lead Battery, which is located along the western property boundary, may have used lead, cadmium, nickel, and possibly other metals. After operations at General Lead Battery ceased, Barth Smelting was located on this property. This facility reportedly received different types of scrap metal, which were melted down and sold. Pilar River Plate, a company that prepares material for tanning leather and is located on the

4.0 TECHNICAL OVERVIEW

4.1 Summary of Field Activities

Stanley Works closed the Stanley Tools facility and discontinued all industrial operations at 140 Chapel Street in 1985. Since 1985, 40 monitoring wells have been installed on-site to investigate the extent of industrial impacts on subsurface soils and groundwater: 35 shallow monitoring wells approximately 20 feet in depth, and 5 monitoring wells in a lower, unconsolidated water-bearing zone beneath the site, approximately 40 to 70 feet in depth. Numerous groundwater samples have been collected from the monitoring wells for laboratory analysis of volatile organics and select metals; semi-annual groundwater sampling from selected wells is ongoing.

Preliminary assessment, delineation and post-excavation soil samples also have been collected from several locations on-site for laboratory analysis of several parameters, including but not limited to volatile organics (VO), base neutrals (BN), polyaromatic hydrocarbons (PAH), total petroleum hydrocarbons (TPHC) and select metals. ENVIRON implemented four phases of soil sampling at the site from 1986 to 1993. ENSR conducted several soil sampling events in select AECs requiring further delineation from October, 1993 to the last sampling event conducted on April 7, 1995. The majority of ENSR's soil sampling activities focused on the pipeline conduit, clay pipeline and sump structure in AEC 8. The primary contaminants of concern in this area included TPHC and three volatile organic compounds (VOCs): tetrachloroethene (PCE); trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE).

Remediation of soils containing metals and organic chemical constituents was conducted at the site under the direction of ENSR personnel. The remediation consisted of excavation and off-site disposal of 18 cubic yards of soils containing TPHC; excavation and off-site disposal of approximately 230 cubic yards of lead and VOC-contaminated soils; recycling of over 2,500 cubic yards of soils contaminated with metals, PAHs, and TPHC using cold batch asphalt processing; and placement of a 2" asphalt final top course over the entire site. In addition, 6 recovery wells have been installed to recover floating free-phase hydrocarbons. The locations of site monitoring wells and recovery wells are shown on the Stanley Tools site plan (Figure 4-1). At the completion of site remedial activities, Stanley Works plans to file a Declaration of Environmental Restriction (DER) on the properties and limit future site development to non-residential uses.

4.1.1 Seasonal Considerations

Groundwater Remediation

Free product recovery operations are affected by seasonal conditions. In the absence of groundwater pumping, product accumulation thickness in the recovery wells is primarily governed by natural water table fluctuations (attributed to the seasons or atmospheric pressure systems) and not necessarily related to the remedial activity. The free product recovery rate increases during the summer months when the groundwater table is lower, making free product in the smear zone more available for recovery.

Soil Remediation

The placement and compaction of the cold batch material was temporarily delayed due to cold weather conditions during the winter of 1993/94. Replacement of a 12 - inch sewer pipeline in AEC 8 as discussed below in Section 5.6, was also delayed until the spring of 1995 due to the onset of winter. The frozen ground surface encountered during the 1995 winter season prohibited placement and compaction of the cold batch to meet the required engineering specifications.

The cold weather severely limited the placement and compaction of the cold batch processed material onto the ground. The cold batch could not be placed and compacted onto the frozen ground surface to meet the specified compaction guidelines used for this project: New Jersey Department of Transportation (NJDOT) Standard Specifications for Road and Bridge Construction, 1989; Section 302.09 Compaction, Shaping, and Finishing. Under NJDOT section 303.09. the cold batch material shall be compacted to 95% of the referenced maximum density. The frozen ground surface conditions only allowed for 85% compaction of the referenced maximum cold batch density. As a result, the placement and compaction of the cold batch was temporarily delayed. Additionally, the cold weather conditions limited the application of the 2-inch I-5 asphalt topcoat. With the ground surface or sub-base being 20 degrees Fahrenheit or below, no paving was permitted under Section 404.12, (Weather Conditions), in the NJDOT Standard Specifications for Road and Bridge Construction, 1989.

When the ambient temperature was 40 degrees Fahrenheit and rising, the placement and compaction of the cold batch material resumed along with the addition of the 2-inch I-5 asphalt topcoat in the spring of 1995. Under these ambient weather conditions the engineering specifications for the cold batch and asphalt topcoat could be met. The placement of the final asphalt topcoat in the western parcel was completed on December 8, 1994. The placement and compaction of the cold batch in the eastern parcel resumed on April 17, 1995 under weather

conditions suitable for proper engineering applications. Final capping of the eastern parcel was completed on April 26, 1995.

4.1.2 Soil Investigations

In general, soil contamination at the Stanley site mainly consists of heavy metals, particularly lead as well as arsenic and zinc, and total petroleum hydrocarbons (TPHCs). Phase III investigations determined that site surface soils at various AECs are also contaminated with polycyclic aromatic hydrocarbons (PAH) compounds. Additionally, a small concentrated area of soil on the east parcel was found to contain elevated concentrations of volatiles, particularly tetrachloroethene, trichloroethene, and cis-1,2 dichloroethene. The VOC contaminated soils were addressed by excavation and off-site disposal. The remaining contaminated soils were addressed by partial excavation, formulation of a cold batch asphalt mix using contaminated soils, and placement of an impervious cap using cold batch asphalt processing and a hot mix top coat. A summary of key analytical results of soil sampling locations and results are included in Appendices A and B. Appendix A includes tables depicting a summary of ENVIRON soil sampling locations, depths, parameters and analytical results. Appendix B includes summary tables of ENSR soil sample locations, depths, parameters and analytical results.

ENSR submitted a Petition for Variance from the Technical Requirements for remediation delineation and post-remediation sampling for the Stanley Tools site on February 14, 1994, which was approved on June 21, 1994. On behalf of Stanley Tools, ENSR proposed to use existing soil data, historical groundwater data, and data from samples subsequently proposed to the NJDEP to fully characterize the subject site. The site specific conditions and technical basis for the variance are the following:

- Historic fill material has been documented at the Stanley site as well as the surrounding area, including two ISRA sites within one mile of the Stanley property. Fill material covers nearly the entire Stanley site, varying in depth from about 2 to 10 feet. Based upon available information, this historic fill material is believed to contain contaminants including, but not limited to, priority pollutant metals, PAHs, and polychlorinated biphenyls (PCBs). The nature of fill material is such that sporadic areas of contamination and hot spots make delineation of areas specifically impacted by site operations difficult, if not impossible.

- The entire site was being remediated by capping. Since Stanley Tools remediated the entire site, the further delineation of individual AECs was not necessary.

- The entire area surrounding the site has been subject to heavy industrial use for at least 75 years and regional contamination from other sources is likely.

- An extensive amount of delineation data has been collected at this site, beginning over 8 years prior to the effective date of the Technical Requirements for Site Remediation. Approximately four hundred soil samples and 40 monitoring wells have been installed at this 6 acre site. In addition, because the site was remediated by capping and has been adequately delineated, post-remediation soil sampling was not necessary in many cases.

As agreed with the NJDEP in meetings on January 18 and 26, 1994, this variance from the Technical Requirements for Site Remediation was appropriate for the remedial action workplan at the Stanley Tools site due to the expected difficulties in delineation sampling due to the presence of historic fill material, the capping of the entire site, the extensive amount of analytical data collected prior to the adoption of the Technical Requirements, and regional contamination issues.

Installation of an asphalt cap at the site reduced the potential direct contact exposure pathway to soil contamination and minimized the impact of soil contaminants to the groundwater. Contaminated soils in most of the AECs were incorporated into the cold batch asphalt recycling used to create a 6- to 9-inch sub-base for a final 2-inch cap over the site. The use of cold batch recycling has been demonstrated to be an effective stabilization removal technique for TPHCs, base neutrals, metals, PCBs, and volatile organic compounds. It was agreed that it would not be necessary to increase the amounts of soil to be actively remediated unless, on an AEC by AEC basis, the contaminants in soil have impacted groundwater in the immediate area of the AEC and/or if a "source area" existed that could potentially have a significant future impact on groundwater. Much of the metals, PCB and base neutral contaminants identified during sampling, has been excavated and incorporated into the cold batch material and placed over the site as an asphalt sub-base material. Therefore, the analytical data presented on the figures in Appendix C represent pre-remedial subsurface conditions.

Forty-seven AECs have been identified at the Stanley Tools site based on site reconnaissance, a review of past operations, and an examination of existing sampling data. In addition, several other areas of environmental concern were identified during the course of remedial investigations/actions. A summary of remedial investigations completed in these areas are described in Section 5.1. Appendix A contains summary tables of soil sample names, location, depths, parameters, and analytical results for all Phase I, II, III and IV soil samples collected previously by ENVIRON from October 1986 through August 1993. Soil sample names, location, depths, parameters and analytical results for all Phase V and VI soil samples collected by ENSR

from October 1993 through April 1995 are presented in the summary tables in Appendix B. A summary of soil sample results of ENVIRON and ENSR sampling events are depicted on the figures in Appendix C. All ENSR analytical results presented in these tables and figures were compared to the NJDEP Impact to Groundwater Soil Cleanup Criteria. According to the NJDEP, the Impact to Groundwater Soil Cleanup Criteria are appropriately applied to the subject site since Stanley Tools has completed remedial capping of the entire site and has agreed to accept a DER negating the need for comparison to Non-residential and Residential Direct Contact Soil Cleanup Criteria[1].

4.1.3 Groundwater Investigations

Thirty-eight monitoring wells and six free-phase product recovery wells currently exist at the site. Monitoring well and recovery well locations are shown on Figure 4-1. A total of ten rounds of groundwater sampling have been conducted to date. Not every well was sampled in every round. Previous groundwater sampling events at the site include the following:

ENVIRON Investigations

- November 1986
- December 1991
- January 1992
- June 1993

ENSR Investigations

- September 1993
- May 1994
- August 1994
- November 1994
- February 1995
- May 1995

The results of previous groundwater investigations indicated that VOC contamination is the primary concern in several shallow wells on the eastern parcel of the Stanley site. The groundwater contaminants in this area include tetrachloroethylene, trichloroethylene, and 1,2 trans-dichloroethylene. The shallow wells on the western parcel of the site primarily contain TPHCs, the source of which is believed to have been the former underground storage tanks in

[1] Stanley does not necessarily agree with NJDEP's position in this regard.

AECs 24 and 25 near these well locations. In addition, floating fuel-oil product, the source of which is believed to have been the former USTs at AECs 23, 24, and 25, was detected in several monitoring wells on the western parcel of the site. Contaminated groundwater is being addressed in part through a free-product recovery system for oil floating on the groundwater (see Section 4.2).

Data collected during the most recent groundwater sampling event and historical sampling events have been used to evaluate concentration variations of specific compounds over time. Analytical results received for all sampling events have been summarized in Table 4-1.

Throughout the course of the groundwater monitoring program, only vinyl chloride and tetrachlorethene have historically exceeded the ACLs proposed by ENSR/Stanley December 1, 1994. For the November 1994 groundwater sampling round, trichloroethene concentrations above the ACLs were found in three wells. The elevated VOC concentrations in these wells, as well as those found in monitoring wells located in the vicinity of AEC 8, are believed to be a transient phenomena associated with the soil disturbance and potential flushing that resulted from source control (contaminated soil removal) measures related to the clay pipe in the eastern portion of the site.

As indicated in the December 1, 1994 submittal, ENSR/Stanley propose to address vinyl chloride and tetrachloroethene contamination in the groundwater by a combination of source removal and monitoring. Source removal measures related to VOC contaminated soil in the eastern portion of the site was completed by excavation and off-site disposal of approximately 230 cubic yards of VOC contaminated soils. ENSR/Stanley proposed to monitor for VC and PCE semi-annually (twice per year at six month intervals) for a period of three years to measure the progress of natural attenuation at the site. The annual fall groundwater sampling event will also include the sampling and analysis of TCE and cis- and trans-1,2-DCE, as requested by the NJDEP in their May 16, 1995 letter approval of the semi-annual sampling program.

Monitoring wells MW-2, MW-9, MW-10, MW-18, MW-19, MW-20, MW-21, MW-24, MW-37, MW-39 and MW-40 will be included in the semi-annual sampling program. Free product wells MW-15, MW-16, MW-29 and MW-36 will not be sampled, but free product will be measured. In addition, water levels will also be measured semi-annually from MW-1, MW-4 through 8, MW-13, MW-22, MW-30, MW-31, MW-32 and MW-33 which will not be sampled.

At the end of the three-year time period following the November 1997 round, ENSR/Stanley will further evaluate the data and propose an appropriate course of action. A three year time period is proposed as a sufficient time period to evaluate the effectiveness of source removal at reducing the area of contamination. If both vinyl chloride and tetrachloroethene are maintained

Table 4-1
Summary of Historical Groundwater Sample Collection Data for Key Compounds (ug/l)
November 1986 through May 1995
Stanley Tools – Newark, New Jersey

COMPOUNDS	MW-01									MW-02								
	11/3/86	12/16/91	1/20/92	6/25/93	9/28/93	5/18/94	8/23/94	11/21/94	2/22/95	11/3/86	12/16/91	1/20/92	6/25/93	9/28/93	5/18/94	8/23/94	11/21/94	5/23/95
ARSENIC (TOTAL)				ND	ND								ND	ND				ND
ARSENIC (DISSOLVED)					ND									ND				ND
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	*1.7*	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	*1.3*	*1.2*	*1.1*	*1.3*	*1.4*	ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)	15			350	ND					23			230	41	64.3	ND		33.5
ZINC (DISSOLVED)					ND									13 J	45	ND		29.1

COMPOUNDS	MW-03									MW-04								
	11/3/86	12/16/91	1/21/92	6/25/93	9/28/93	5/19/94	8/25/94	11/22/94	2/23/95	11/3/86	12/16/91	1/21/92	6/25/93	9/28/93	5/19/94	8/25/94	11/22/94	2/23/95
ARSENIC (TOTAL)				ND	ND								2.4 J	ND				
ARSENIC (DISSOLVED)					ND									ND				
CHLOROBENZENE	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	*4J*	ND	ND	ND	ND	0.8J	ND	ND	*1.7*	*65*	*33.4*	*31.5*	*13.6*	*47*	*32*	*30*	ND	*17*
TRICHLOROETHENE	ND	*2.4J*	ND	ND	*1.2*	ND	ND	ND	0.44	*4*	*3.46*	*3.56*	ND	*4*	*3.4*	*2.6*	*2.3*	*2.3*
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)	18			260	40	26				34			200	ND	16.6			
ZINC (DISSOLVED)					17J	23.6								14J	ND			

COMPOUNDS	MW-05									MW-06								
	11/3/86	12/16/91	1/21/92	6/22/93	9/28/93	5/17/94	8/26/94	11/23/94	2/24/95	11/3/86	12/16/91	1/21/92	6/22/93	9/28/93	5/17/94	8/26/94	11/23/94	2/24/95
ARSENIC (TOTAL)				ND	ND					5			5	*21*	*10.1*	ND	*24*	5.8
ARSENIC (DISSOLVED)					ND									18	8.6	ND	13	7.5
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
TETRACHLOROETHENE	ND	ND	ND	*2.71 J*	*3.3*	*2.1*	*1.2*	ND	*3*	ND	ND	ND	ND	ND	ND			
TRICHLOROETHENE	ND	ND	ND	*8.33*	*9.9*	*4.4*	*2.2*	ND	*8.1*	ND	ND	ND	ND	ND	ND			
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
ZINC (TOTAL)	696			1800	760	454	530	280		4390			*8770*	*7800*	*6680*	*7600*	*7700*	3900
ZINC (DISSOLVED)					690	250	410	170						7400	5300	7100	5400	3400

COMPOUNDS	MW-07									MW-08								
	11/3/86	12/16/91	1/21/92	6/22/93	9/28/93	5/17/94	8/26/94	11/23/94	2/24/95	11/3/86	12/16/91	1/21/92	6/23/93	9/28/93	5/18/94	8/24/94	11/22/94	2/23/95
ARSENIC (TOTAL)		ND		6.3 J	ND								ND	ND				
ARSENIC (DISSOLVED)					ND									ND				
CHLOROBENZENE	ND	ND	ND	ND	ND	ND				ND	22.5	28.9	34.3	2.2	ND	33	ND	0.23
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND				ND	ND	ND	ND	*1.4*	*1.1*	*1.2*	ND	0.83
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	*1.1*	0.87	ND	0.73
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)	1620	*15000*		1900	690	1490	2300	*27000*	1800	43			810	ND	36.8	33	59	ND
ZINC (DISSOLVED)					460	741	520	190	410					ND	15.9	ND	ND	ND

ND – Not Detected
J – Compound was detected at levels below practical quantitation limit.
The level reported is approximate.
Bold/Italic data indicates concentrations above NJGWQS, underlined data indicates concentrations above ACLs

6303-056(7)/TBL4-1.WK3

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Table 4–1
Summary of Historical Groundwater Sample Collection Data for Key Compounds (ug/l)
November 1986 through May 1995
Stanley Tools – Newark, New Jersey

(Continued)

COMPOUNDS	MW–09										MW–10									
	11/3/86	12/16/91	1/21/92	6/23/93	9/28/93	5/18/94	8/24/94	11/22/94	2/23/95	5/24/95	11/3/86	12/16/91	1/21/92	6/24/93	9/28/93	5/18/94	8/24/94	11/22/94	2/22/95	5/23/95
ARSENIC (TOTAL)				3 J	4.4J	3	ND	ND	ND	ND		***13***		2 J	5.2J	ND	ND	ND	ND	ND
ARSENIC (DISSOLVED)					ND	3.8	ND	ND	ND	ND					ND	ND	ND	ND	ND	ND
CHLOROBENZENE	ND	ND	***172***	***54.7***	***62***	***72***	8.1	***230***	***130***	***7.8***	***120***	***74***	***117***	***112***	***150***	***150***	***190***	***190***	***150***	***111***
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND	***1.4***	ND	ND	ND	ND	ND	ND	ND	ND	***4.1***	ND	***6.1***	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND	0.76	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	***69***	***340***	***183***	***27.9***	***46***	***200***	***19***	***62***	ND	ND
ZINC (TOTAL)	12			280	ND	173					48	700		140	ND	18.2				
ZINC (DISSOLVED)					ND	30.2									ND	ND				

COMPOUNDS	MW–11									MW–12							
	11/3/86	12/16/91	1/20/92	6/23/93	9/28/93	5/18/94	8/24/94	11/22/94	2/23/95	12/16/91	1/21/92	6/24/93	9/28/93	5/20/94	8/24/94	11/22/94	2/23/95
ARSENIC (TOTAL)				ND	ND							6.6 J	4.9 J	ND	ND	ND	ND
ARSENIC (DISSOLVED)					ND								ND	ND	ND	ND	ND
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
TETRACHLOROETHENE	***22***	***7J***	***6.21***	***3.37 J***	***10***	***4.1***	***5.5***	***13***	***6.3***	ND	ND	ND	ND	ND			
TRICHLOROETHENE	***6***	ND	ND	ND	0.58J	ND	0.5	ND	***1.5***	ND	ND	ND	ND	ND			
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	***54***	1.7	ND	ND	ND	ND	ND			
ZINC (TOTAL)	21			710	ND	26	26	120	36			360	ND				
ZINC (DISSOLVED)					ND	ND	ND	ND	ND				ND				

COMPOUNDS	MW–13								MW–14						
	12/16/91	1/21/92	6/23/93	9/28/93	5/17/94	8/25/94	11/22/94	2/24/95	12/16/91	1/22/92	6/22/93	9/28/93	5/17/94	8/26/94	11/23/94
ARSENIC (TOTAL)			5.8 J	7.5 J	ND	7.2	***14***	***8.6***	8J		ND	ND			
ARSENIC (DISSOLVED)				6J	4.4	6.2	ND	ND				ND			
CHLOROBENZENE	ND	ND	ND	ND	ND				ND	ND	1.42 J	2.1	ND	2.7	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)			710	250	176	670	700	150	2400		1100	230	248	400	630
ZINC (DISSOLVED)				54	52.4	120	59	62				72	26	27	140

COMPOUND	MW–17					MW–18								
	12/17/91	1/21/92	6/25/93	9/28/93	5/19/94	12/16/91	1/21/92	6/24/93	9/28/93	5/19/94	8/23/94	11/21/94	2/21/95	5/23/95
ARSENIC (TOTAL)	6.2J		2.1 J	ND		7.1J		3.5 J	ND					
ARSENIC (DISSOLVED)				ND					ND					
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND	***97***	***83.8***	***23.4***	***39***	***16***	***20***	***23***	***12***	***12***
TRICHLOROETHENE	ND	ND	ND	ND	ND	***11***	***14.4***	***4.87***	***5.8***	***3.8***	***5.5***	***1.4***	***5***	***3***
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	0.87J	ND	ND	ND	ND	ND
ZINC (TOTAL)	400		310	33		2000		340	120	214				
ZINC (DISSOLVED)				ND					44	27.2				

ND – Not Detected

J – Compound was detected at levels below practical quantitation limit.
The level reported is approximate.

Bold/Italic data indicates concentrations above NJGWQS, underlined data indicates concentrations above ACLs

877630123

Table 4-1
Summary of Historical Groundwater Sample Collection Data for Key Compounds (ug/l)
November 1986 through May 1995
Stanley Tools – Newark, New Jersey

(Continued)

COMPOUND	MW-19									MW-20								
	12/16/91	1/21/92	6/24/93	9/28/93	5/18/94	8/23/94	11/21/94	2/21/95	5/23/95	12/16/91	1/21/92	6/23/93	9/28/93	5/19/94	8/24/94	11/22/94	2/23/95	5/24/95
ARSENIC (TOTAL)	9.3J		3.2 J	ND						4.4J		4.7 J	ND					
ARSENIC (DISSOLVED)				ND									ND					
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6
TETRACHLOROETHENE	660	17.3	36	10	3.4	6.7	230	49	4.5	6.8J	15.4	9.25	20	5.5	7.6	ND	13	5.3
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.47	4.36	4.8	3.1	1.6	ND	8.9	3.1
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.5	ND	ND	ND	9.8	3.5
ZINC (TOTAL)	1100		610	430	420	420	2100	360	450	320		270	49					
ZINC (DISSOLVED)				380	418	440	330	350	415				ND					

COMPOUND	MW-21									MW-22			
	12/16/91	1/21/92	6/25/93	9/28/93	5/19/94	8/24/94	11/22/94	2/23/95	5/24/95	12/16/91	6/23/93	9/28/93	5/18/94
ARSENIC (TOTAL)	9.1J		7.6 J	6J	22.5					ND	ND	ND	
ARSENIC (DISSOLVED)				7.6J	3.6							ND	
CHLOROBENZENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND
ZINC (TOTAL)	3500		1100	110	6450	190	11000	460	123	150	140	17 J	
ZINC (DISSOLVED)				69	53.9	20	70	ND	ND			ND	

COMPOUND	MW-23								MW-24								
	12/17/91	1/21/92	6/23/93	9/28/93	5/17/94	8/25/94	11/22/94	2/24/95	12/16/91	1/21/92	6/24/93	9/28/93	5/16/94	8/23/94	11/21/94	2/22/95	5/23/95
ARSENIC (TOTAL)			ND	ND					ND		2 J	ND					
ARSENIC (DISSOLVED)				ND								ND					
CHLOROBENZENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND				240	1730	414	1400	890	1500	4500	9600	1330
TRICHLOROETHENE	ND	ND	ND	ND	ND				51	581	79.3	250	250	330	1700	1000	161
VINYL CHLORIDE	ND	ND	ND	ND	ND				16	63.3 J	ND	140	920	380	ND	ND	ND
ZINC (TOTAL)			1100	97	205	270	250	200	230		310	140	178				
ZINC (DISSOLVED)				ND	29.2	76	22	21				140	79.5				

COMPOUND	MW-25								MW-26				
	12/18/91	1/21/92	6/22/93	9/28/93	5/17/94	8/26/94	11/23/94	2/24/95	12/18/91	1/21/92	6/23/93	9/28/93	5/17/94
ARSENIC (TOTAL)	6J		3.5 J	6.6J	9.7						4 J	7.4J	ND
ARSENIC (DISSOLVED)				4.1J	7.1							ND	ND
CHLOROBENZENE	ND	ND	ND	3.4	ND	ND	ND	0.81	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)	1100		920	240	423	390	8100	59000			480	400	30.2
ZINC (DISSOLVED)				32	183	67	150	670				ND	ND

ND – Not Detected
J – Compound was detected at levels below practical quantitation limit.
The level reported is approximate.
Bold/Italic data indicates concentrations above NJGWQS, underlined data indicates concentrations above ACLs

Table 4-1
Summary of Historical Groundwater Sample Collection Data for Key Compounds (ug/l)
November 1986 through May 1995
Stanley Tools – Newark, New Jersey

(Continued)

COMPOUND	MW-30				MW-31				MW-32				
	5/21/94	8/25/94	11/23/94	2/24/95	5/21/94	8/25/94	11/23/94	2/24/95	12/16/91	1/21/92	6/24/93	9/28/93	5/19/94
ARSENIC (TOTAL)	ND	***8.8***	ND	ND	***76.9***	ND	***8.5***	ND			ND	ND	
ARSENIC (DISSOLVED)	ND	8.2	ND	ND	ND	ND	ND	ND				ND	
CHLOROBENZENE	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)	283	2100	1100	89	3290	35	230	31			470	48	
ZINC (DISSOLVED)	116	900	63	81	23	ND	49	ND				ND	

COMPOUND	MW-33				MW-34				
	12/16/91	1/21/92	6/24/93	5/20/94	12/16/91	1/21/92	6/24/93	9/28/93	5/20/94
ARSENIC (TOTAL)			3 J				ND	ND	
ARSENIC (DISSOLVED)									
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)			170				ND	ND	
ZINC (DISSOLVED)									

COMPOUND	MW-35					MW-36		MW-37						MW-38
	12/16/91	1/21/92	6/22/93	9/28/93	5/17/94	12/16/91	1/21/92	9/13/93	5/16/94	8/23/94	11/21/94	2/21/95	5/23/95	9/13/93
ARSENIC (TOTAL)			ND	ND				ND	***17.1***	***44***	***8.2***	***9.3***	ND	ND
ARSENIC (DISSOLVED)				ND					ND	ND	ND	ND	ND	
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	***369***	***690***	***1700***	***4500***	***960***	***2150***	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	***56.2***	***130***	***310***	***1000***	***130***	***264***	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)			690	81				940	2410	2700	980	990	855	32
ZINC (DISSOLVED)				ND					1470	970	320	650	811	

COMPOUND	MW-39						MW-40					
	9/13/93	5/16/94	8/23/94	11/21/94	2/22/95	5/24/95	9/13/93	5/16/94	8/23/94	11/21/94	2/22/95	5/23/95
ARSENIC (TOTAL)	ND	ND	ND	ND	ND	ND	ND	***9.7***	ND	ND	***41***	ND
ARSENIC (DISSOLVED)		ND	ND	ND	ND	ND		ND	ND	ND	ND	ND
CHLOROBENZENE	ND	ND	ND	ND	0.32	0.81	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	***12.5***	***690***	***4.7***	***3.9***	***10***	***4.2***	***183***	***1200***	***4000***	***2500***	***3300***	***18200***
TRICHLOROETHENE	ND	***130***	ND	ND	***2.6***	0.96	***268***	***300***	***710***	***130***	***280***	***2820***
VINYL CHLORIDE	ND	ND	ND	ND	3.6	ND	ND	***510***	ND	ND	ND	***163***
ZINC (TOTAL)	17 J	14.5	36	ND	140	ND	99	1978	660	630	***6100***	222
ZINC (DISSOLVED)		ND	ND	ND	73	ND		128	150	67	64	ND

ND – Not Detected
J – Compound was detected at levels below practical quantitation limit.
The level reported is approximate.
Bold/Italic data indicates concentrations above NJGWQS, underlined data indicates concentrations above ACLs

the system is currently in operation. The upgraded system, consists of six passive skimmers and four active pneumatic skimming pumps to continuously recover free-phase product from the western parcel. In addition, passive free product recovery efforts have continued at monitoring well MW-36 (to the east). The product recovered from the skimming equipment is pumped to and temporarily stored in a 550-gallon above-ground holding tank to await disposal at an approved facility. To ensure effective operation of the product recovery equipment, the site is monitored on a weekly basis. The free-phase product and groundwater elevation in each monitoring well are measured and recorded during each visit. Additionally, the product recovered from wells utilizing the passive skimmers is measured and recorded during each weekly site visit. A cumulative graph for the entire product recovery program (passive and active) is presented in Figure 4-2. See Figure 4-3 for a free product isopach drawing showing the apparent free product thickness and estimated areal extent of free-phase product based on data collected on November 18, 1994.

4.3 Summary of Pre-Design Studies

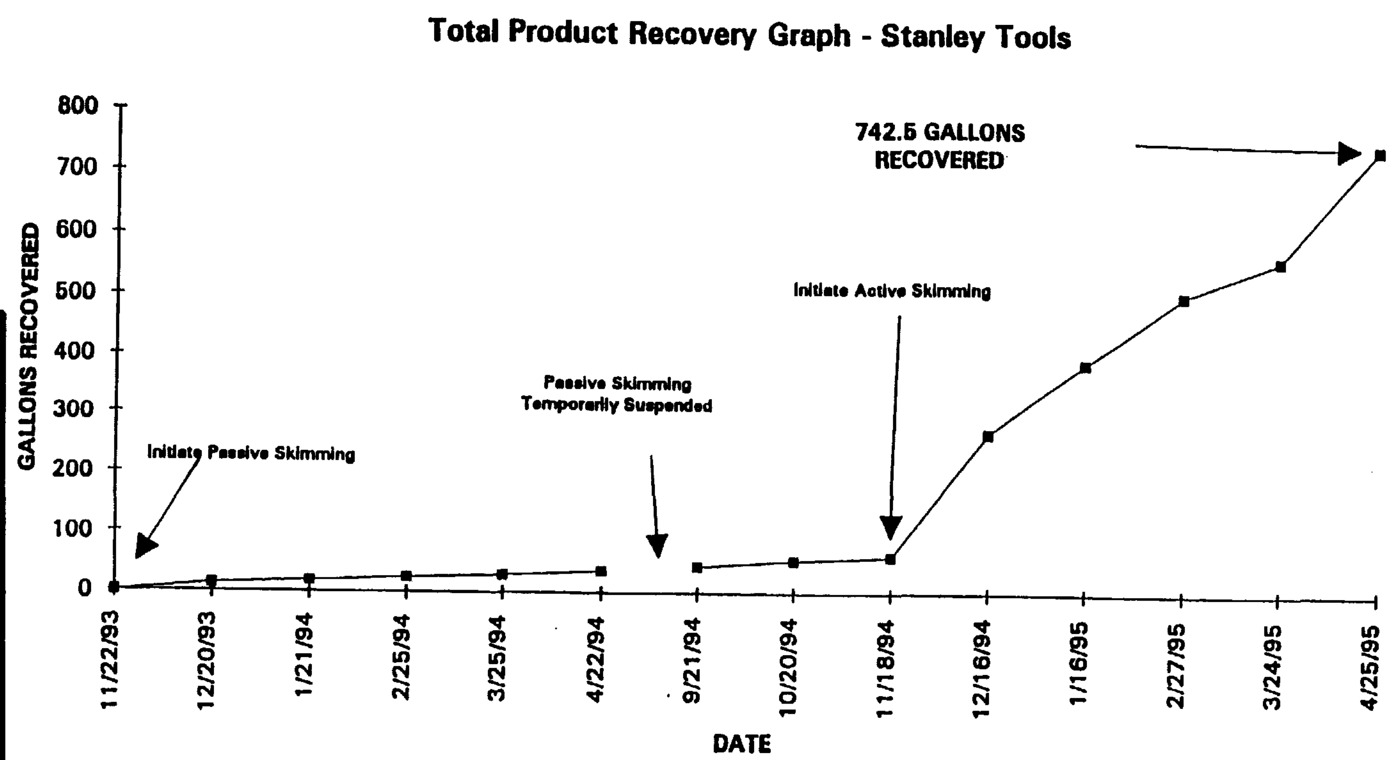
As suggested by but not required by NJDEP, a pilot study was conducted by an independent cold batch asphalt contractor to confirm the formulation requirements for cold batch asphalt recycling of soils contaminated with petroleum hydrocarbons and heavy metals at the Stanley Tools site. The results of the pilot study indicated that the cold batch asphalting of the onsite contaminated soil does produce a sound asphalt pavement and is an effective method for stabilizing contaminants. The pilot study indicated significant reduction in leachability based on the comparison of TCLP results of soil untreated and treated. The results of this pilot study are detailed in ENSR's May 19, 1994 correspondence to the NJDEP.

The cold batch material produced by the initial cold batch contractor failed to meet the quality assurance performance specifications for the processed material. This lead to the reprocessing of the material by a second independent cold batch contractor. The reprocessed materials met the performance specifications.

Prior to reprocessing the cold batch material, the second contractor performed an additional pilot study on the failed cold batch material. The pilot study conducted by the second contractor concluded that their cold batch processing techniques would significantly reduce the leachable lead levels in the failed cold batch material and provide a material also meeting the structural performance specifications.

4.4 Permit Limitations - Cold Batch Processing

The on-site production of cold batch involved the use of a pugmill mixer to blend the onsite soils



ENSR

ENSR CONSULTING AND ENGINEERING

FIGURE 4–2

TOTAL PRODUCT RECOVERY GRAPH

STANLEY TOOLS – NEWARK, NEW JERSEY

DRAWN BY: SJS	DATE: 6/23/95	PROJECT #	REV.
FILE # 6303–AA	CHECKED: KMW	6303–056–60R	1

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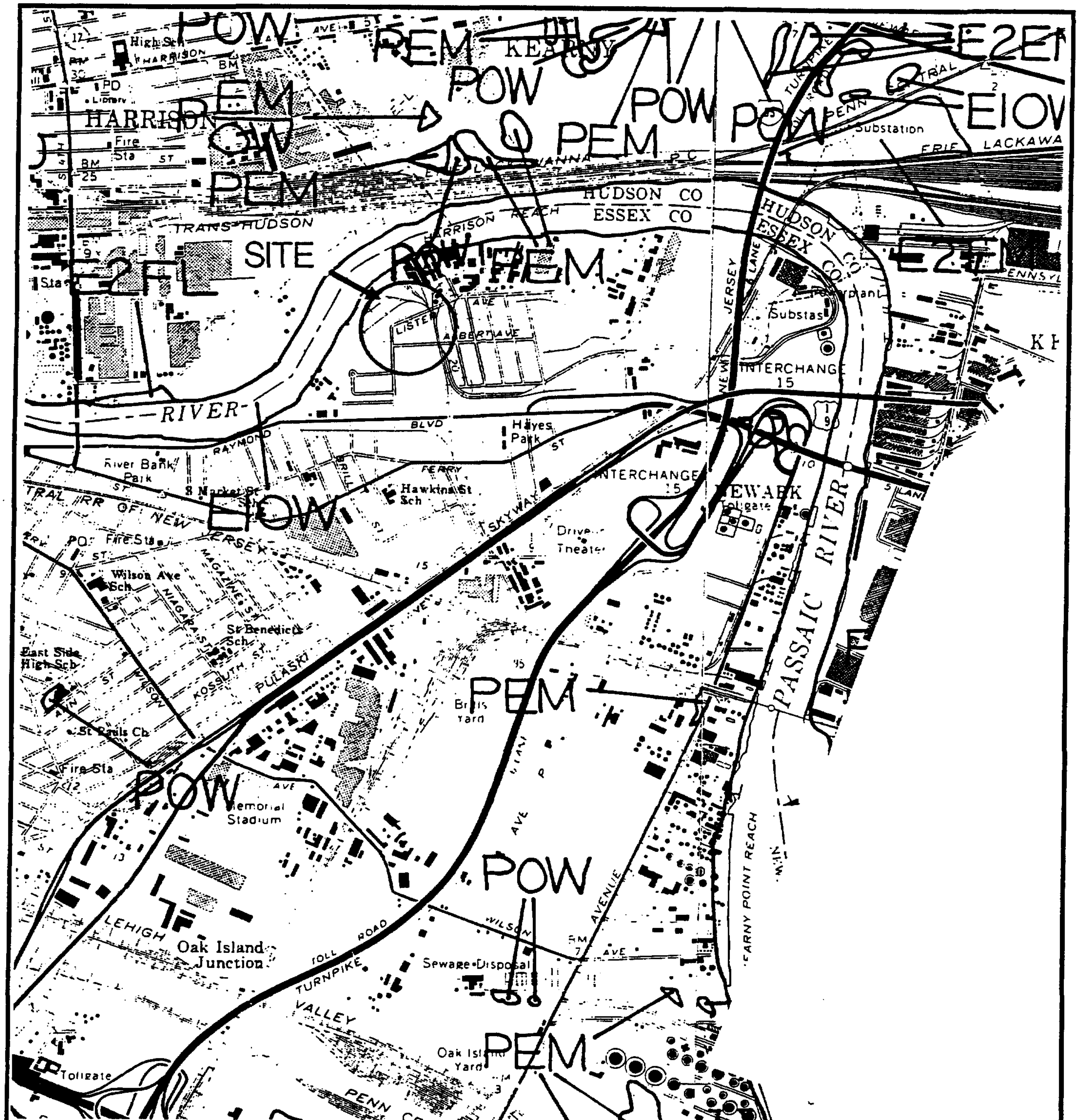

SOURCE: National Wetlands Inventory Map Quadrangles
Elizabeth, NJ, 10/29/76
Jersey City, N, 10/29/76

SCALE

0 1/4 1/2 1 MILE

N

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ENSR Consulting and Engineering

FIGURE 3-4
NATIONAL WETLANDS INVENTORY MAP
Stanley Tools
Newark, New Jersey

DRAWN: KMW	DATE: June 16, 1995	PROJECT NO.:	REV:
FILE NO.:	CHECKED:	6303-056-60R	

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northern property boundary, may have used chromium and other metals in its process."

Examination of the industries currently surrounding the Stanley Tools facility indicates that some of the industries mentioned by ENVIRON no longer exist. However, it was noted during ENSR's site observations that the leather dye and finish company still exists to the northwest, and a Sherwin Williams paint manufacturing plant and an adjacent asphalt plant are currently located to the north-northeast of the site. A Benjamin Moore paint facility also lies to the northeast. Directly to the east, across a railroad spur, lies the Reichhold Chemical Plant. Storage facilities and a leather dye and finish facility lie north-northwest of the site, and a storage facility and other industries lie to the south-southwest. In addition, it was noted that many industries surrounding the Stanley Tools facility, other than the storage facilities, have above-ground storage tanks and 55-gallon drums present.

3.9 Historic/Current Groundwater Use in the Site Vicinity

In the Newark area, groundwater historically was the principal source of water-supply for industry. Groundwater has been used principally for cooling by industries, for air-conditioning, for sanitary and general industrial processing purposes, and by beverage manufacturers as an ingredient in their products. In the 1960s, groundwater use in the Newark area was estimated at approximately 20 million gallons per day. Also during the 1960s, the demand for water used for cooling and as an ingredient in beverages was greater in the summer. After the 1960s, groundwater use decreased as municipal supplies became more available and more reliable.

ENVIRON conducted a well search in 1992 as requested from the NJDEP Bureau of Water Allocation. Additionally, ENSR conducted a well search in 1994 and received the results of a well search from the NJDEP Bureau of Water Allocation (BWA) that identified wells within a 1-mile radius of the site. A summary of all registered and permitted water-withdrawal wells was also received. A map of locations of parcels containing water-supply wells situated within a 1-mile radius of the site and a summary table containing physical data for each well were provided to the NJDEP. In addition to the information provided by the BWA, a telephone survey of the owners of the water-supply wells within a 1-mile radius of the site was conducted by ENSR to assess current groundwater use in the area.

Results indicate that in the past many industrial facilities in the area have used groundwater from wells, but that the use of water from these production wells was primarily industrial in nature (e.g., for industrial cooling, washing, etc.). Currently, the groundwater is not used for potable water supply or for incorporation into products (e.g., beverages). All of the groundwater supply wells that were identified were completed in the Brunswick Formation fractured-bedrock aquifer. The wells were completed by installing solid steel casing through the unconsolidated sediments, and then drilling an open hole into the fractured bedrock, in many cases for several hundred feet. Information regarding registered and permitted wells from the State of New Jersey and results of telephone inquiries indicate that wells at only one site within 1 mile of the site still uses well water. This site, currently owned by Karlshamns USA, Inc. (formerly "The Theobald Industries", as indicated on the well record), has two wells open over an approximately 500-foot interval in the Brunswick Formation bedrock aquifer. Water from these wells is used for industrial purposes in their vacuum system. This site is upgradient (north) of the Stanley Tools facility. In addition, a site owned by Ronson Metals Corporation and located approximately 0.40 mile to the south-southeast of the Stanley Tools facility, has an active water-well registration for three wells completed in the same bedrock aquifer. However, Ronson reports, and the BWA confirms, that: 1) they closed their production facilities in 1990; and 2) they are no longer in business. Nonetheless, because they still have an active well registration, they are legally able to continue to withdraw groundwater at their site. Based on all available data and information, there are no other public or private water-supply wells currently in operation in the vicinity of the site.

On October 19, 1993, ENSR personnel telephoned the BWA and inquired about potential domestic well use in this area. It was stated by BWA personnel that: 1) city water from the municipal distribution system currently is used for drinking in this area; 2) the municipal distribution system also supplies water used for industrial purposes at several sites; and 3) it is unlikely that water from wells in this vicinity is used for drinking, even though the recorded use of some of the industrial production wells is listed as "domestic."

3.10 Impermeable Surface Cover

The majority of the Stanley Tools site is covered by structures and/or pavement. The entire western parcel (approximately 77,373 square feet) of the site is paved. Likewise, the majority of the eastern parcel (approximately 111,534 square feet) is covered by structures and/or paved with the exception of an unpaved area, approximately 410 square feet, at the corner of Chapel Street and Lister Avenue.

with liquid asphalt, portland cement, and water. The pugmill mixers were required by NJDEP permit limitations to operate under negative atmospheric pressure. The pugmill mixers were stationed in Building 51 on the eastern parcel of the Stanley Tools property. All openings to the outside atmosphere in Building 51 were closed-off with plastic sheeting to produce a negative atmosphere in the building. A Permit to Construct, Install or Alter, Control Apparatus or Equipment and Certificates to Operate Control Apparatus or Equipment (Log No. 1-93-4343) was issued by NJDEP on May 2, 1994 (for initial processing) and (Certificate Number 119930; Log No. 1-94-4138) was issued by the NJDEP on November 3, 1994 for the operation of the exhaust vent system of the pugmill mixer. Permit limitations for the operation of the exhaust ventilation system of the pugmill mixers were stipulated in the Conditions for a Permit to Construct and a Certificate to Operate (Log Number 1-93-4343) (initial processing) and Log Number 1-94-4138 (subsequent processing). A copy of the conditions for final processing are included in Appendix E.

ENSR sampled the cold-batched process material after a three to five day curing period to ensure that the processed material passed the TCLP lead criteria pursuant to the contractor's quality assurance performance specification. Sampling was conducted in accordance with NJDEP sampling guidance for obtaining representative samples for waste classification. A total of seven samples (IJ, KL, MN, 0-1, P-1, Q-1, and R-1) were analyzed by both Envirotech Research Inc. and ENVIRO-PROBE, Inc. of Edison, New Jersey for TCLP lead. The results of these analyses were below regulatory levels. Laboratory data sheets are provided in Appendix E. Additional testing for physical characteristics (thickness, stability, flow value, and percent air voids) was conducted by Shimel and Sor Testing Laboratories, Inc. of Cedar Grove, New Jersey. The results of these test results are provided in Appendix E.

4.5 Ecological Studies

Since there are no known ecological impacts from the Stanley site, detailed ecological studies have not been conducted. This determination was confirmed in NJDEP's letter of May 19, 1993, which stated "there are no immediate ecological receptors in the region." Newark is an industrial area, and contains no significant population of wildlife or vegetation, and there is no agriculture in the area. Additionally, since there is no surface water on the site or in the immediate vicinity, there is no risk of exposure to aquatic life. Currently, there are a number of dogs living on or near the site. Groundwater is approximately 10 feet below the ground surface in the area, making exposure to dogs or other domestic animals in the vicinity impossible. Although most surfaces in the area are currently paved or otherwise developed, a small amount of vegetation is present. This vegetation (primarily weeds) does not appear to be affected by the concentrations of groundwater constituents currently present. There is no possibility for adverse effects on physical structures.

below the ACLs in all wells for the final year of monitoring, ENSR/Stanley propose no further action.

As required in the NJDEP RAW approval letter dated May 19, 1993, a search for two inactive production wells on the eastern portion of the site has been conducted. The exact location of one production well is known. ENSR and Stanley conducted an extensive search to locate the suspected second well, but the search was unsuccessful. On May 10, 1994 Stanley received a letter from the NJDEP Bureau of Water Allocation authorizing Stanley to discontinue efforts to locate the second well. As required by NJDEP, ENSR is currently in the process of investigating the bedrock aquifer. The results of this investigation will be submitted to NJDEP under separate cover.

Due to accidental damage incurred during site remediation activities, monitoring well MW-40 was abandoned and sealed by a licensed New Jersey licensed well driller, Advanced Drilling Inc., and a new groundwater monitoring well was installed in its place in April, 1995. A copy of the Monitoring Well Permit, Monitoring Well Record and the Well Abandonment Reports for MW-40 are provided in Appendix D. In a May 16, 1995 response letter, NJDEP approved ENSR's proposal for the abandonment and sealing of the following ten existing monitoring wells by a New Jersey licensed well driller: MW-3, MW-11, MW-12, MW-14, MW-17, MW-23, MW-25, MW-26, MW-34 and MW-35.

4.2 Summary of Free Product Recovery Activities

Beginning in January 1992, free-phase product was recovered from monitoring wells MW-15, MW-16, MW-29, and MW-36 on a biweekly basis by ENVIRON and Stanley Tools personnel. In October 1993, Recovery Wells RW-1 through RW-4 were installed by ENSR to expedite petroleum hydrocarbon product recovery in the western parcel. ENSR began weekly product recovery from these monitoring wells and recovery wells in November 1993 utilizing passive skimmers. In April 1994 passive free product recovery was temporarily suspended, and construction of an active free product recovery system was initiated. Two additional recovery wells (RW-5 and RW-6) were installed to upgrade the product recovery program. Monitoring well boring logs and construction Form As and Bs for the six recovery wells were submitted to the NJDEP in the ENSR September 1994 Annual Groundwater Sampling Report. This upgrade, termed as Phase II, utilized a pneumatic product skimming system. The active recovery system was not immediately placed into operation, due to the continuance of site remediation activities. The passive free product recovery system was re-installed on August 26, 1994, and collection of product continued starting September 7, 1994.

Construction of the active free product recovery system was completed in November 1994 and

5.0 FINDINGS/REMEDIAL ACTION REPORT

5.1 Summary of Remedial Action by Area of Environmental Concern (AEC)

The remedial approach for the site was cold batch recycling for designated AEC's plus a 2-inch thick asphalt cap for the entire site. The remediation completed for each designated AEC is described below. A summary of excavation activities completed for each AEC is provided in Table 5-1. Figure 5-1 shows the extent and depth of excavation for each AEC. The volume of contaminated media that was remediated for each AEC, includes the amounts listed in Table 5-1 and the area of subsurface contamination remediated by the asphalt capping. Thus, the total volume of contaminated media at the site can not be realistically calculated and can only be estimated to include the volume excavated at each AEC plus the volume of contaminated fill beneath the asphalt cap to the groundwater table. All AECs, in which soil contamination remains above the NJDEP soil cleanup criteria, have been included in the DER proposed for the site.

<u>AEC 1 - Area of Discolored Soil in Front of Building 25A and 53</u> East

AEC 1 is a small (835 sq. ft.) area of discolored soil located on the west side of Buildings 25A and 53. Carcinogenic Polycyclic Aromatic Hydrocarbons (CaPAHs) were detected above the NJDEP Direct Contact Soil Cleanup Criteria in this area.

Remediation in this area consisted of excavation, cold batch recycling and capping. An average depth of 0.7 feet of soil was excavated, approximately 21 cubic yards (cu. yd.) of soil was excavated and recycled into cold batch material, compacted, and used as a base for the placement of the 2-inch thick asphalt cap. Remedial actions were completed for this area.

<u>AEC 2 - Area of Discolored Soil Adjacent to the North Wall of Building 50 and Parking Lot</u>
East

AEC 2 is a narrow rectangular area north of Building 50 which borders the site property boundary fenceline along Lister Avenue. Lead was detected above NJDEP Direct Contact Soil Cleanup Criteria in this area.

Remediation in this area consisted of excavation, cold batch recycling and capping. There are two distinct portions of AEC 2. An average depth of 0.50 feet of soil was excavated from an 479 sq. ft. area between the fence and Building 50. An average depth of 0.8 feet of soil was excavated from an 586 sq. ft. area between the macadam parking lot and the fence. A total of 42 cu. yd. of soil was excavated from AEC 2. Remedial action was completed in this area.

TABLE 5-1

Areas of Environmental Concern (AEC's) Excavated
Stanley Tools - Newark, New Jersey

AEC	Approximate AEC Area (sq.ft.)	Approximate Average Depth of Excavation (ft.)	Approximate Volume of Excavation (cu. yds.)
1	835	0.7	21
2	479	0.5	15
	586	0.8	27
3	746	0.8	26
	505	9.7	166
4,5	5,112	1.1	176
6	495	0.75	35
7	3,947	0.9	119
8	7,662	1.1	404.5
9[1]	1,570	NA	NA
10,11,21	6,800	1.0	280
12	1,077	1.0	84
13	739	8.8	240
	272	2.2	25
14	549	1.0	35
15	2,539	0.75	85
16[2]	2,864	0.9	113
17,25	1,000	2.1	92
18	3,593	1.0	160
19	270	0.9	32
20	4,302	1.0	224
22,35	400	8.1	77
		0.75	
24	1,488	0.8	67

TABLE 5-1 (Cont'd)

Areas of Environmental Concern (AEC's) Excavated
Stanley Tools - Newark, New Jersey

AEC	Approximate AEC Area (sq.ft.)	Approximate Average Depth of Excavation (ft.)	Approximate Volume of Excavation (cu. yds.)
32	925	8.0	12
33	1.0	0.75	8
Former Environ Test Pit 2402	25	2.7	2.0
Former Environ Test Pit TP05	50	1.0	60
Pipeline Conduit	315	0.5	8.3
Sump Structure	640	12	200
Clay Pipeline	420	7.5	169
Underneath Building 20A	192	1.0	2
Sample Location SP-37	100	7	8
1.5-Inch Diameter Pipeline	80	5	0.2
43[1]	1,000	NA	NA

Notes:
1 Paved area that received a 2-inch asphalt cap
2 The remediation of AEC-16 included the excavation of AEC-26

LEGEND

MW20 ⊕ 3.2 — SHALLOW MONITORING WELL AND IDENTIFICATION NUMBER PRODUCT THICKNESS (ft.)

DEEP MONITORING WELL

PRODUCTION WELL

RECOVERY WELL

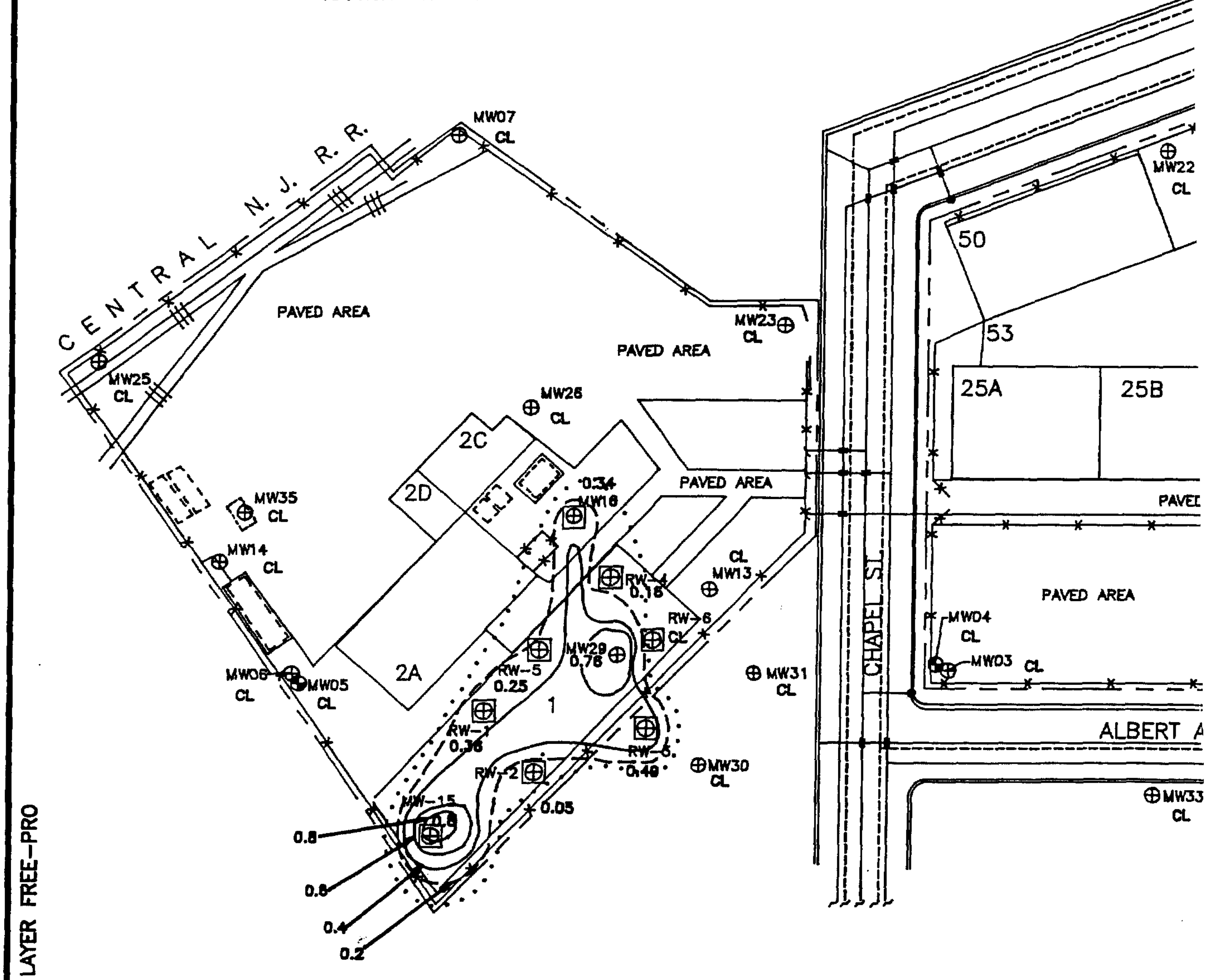
CONTOUR LINE

CONTOUR LINE (INFERRED)

CL — CLEAR OF FREE-PHASE PETROLEUM HYDROCARBON PRODUCT

APPROXIMATE DELINEATION OF FREE-PHASE PRODUCT

MONITOR WELL	APPARENT PROD THICKNESS (IN F
MW-15	0.8
MW-16	0.34
MW-29	0.76
MW-36	0.06
RW-1	0.36
RW-2	0.05
RW-3	0.49
RW-4	0.16
RW-5	0.25
RW-6	CL



ENSR CONSULTING AND ENGINEERING	DATE: JUNE 1995	DESIGN: KMW	DR
	SCALE: AS NOTED	CHECKED:	AP

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4.0 TECHNICAL OVERVIEW

4.1 Summary of Field Activities

Stanley Works closed the Stanley Tools facility and discontinued all industrial operations at 140 Chapel Street in 1985. Since 1985, 40 monitoring wells have been installed on-site to investigate the extent of industrial impacts on subsurface soils and groundwater: 35 shallow monitoring wells approximately 20 feet in depth, and 5 monitoring wells in a lower, unconsolidated water-bearing zone beneath the site, approximately 40 to 70 feet in depth. Numerous groundwater samples have been collected from the monitoring wells for laboratory analysis of volatile organics and select metals; semi-annual groundwater sampling from selected wells is ongoing.

Preliminary assessment, delineation and post-excavation soil samples also have been collected from several locations on-site for laboratory analysis of several parameters, including but not limited to volatile organics (VO), base neutrals (BN), polyaromatic hydrocarbons (PAH), total petroleum hydrocarbons (TPHC) and select metals. ENVIRON implemented four phases of soil sampling at the site from 1986 to 1993. ENSR conducted several soil sampling events in select AECs requiring further delineation from October, 1993 to the last sampling event conducted on April 7, 1995. The majority of ENSR's soil sampling activities focused on the pipeline conduit, clay pipeline and sump structure in AEC 8. The primary contaminants of concern in this area included TPHC and three volatile organic compounds (VOCs): tetrachloroethene (PCE); trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE).

Remediation of soils containing metals and organic chemical constituents was conducted at the site under the direction of ENSR personnel. The remediation consisted of excavation and off-site disposal of 18 cubic yards of soils containing TPHC; excavation and off-site disposal of approximately 230 cubic yards of lead and VOC-contaminated soils; recycling of over 2,500 cubic yards of soils contaminated with metals, PAHs, and TPHC using cold batch asphalt processing; and placement of a 2" asphalt final top course over the entire site. In addition, 6 recovery wells have been installed to recover floating free-phase hydrocarbons. The locations of site monitoring wells and recovery wells are shown on the Stanley Tools site plan (Figure 4-1). At the completion of site remedial activities, Stanley Works plans to file a Declaration of Environmental Restriction (DER) on the properties and limit future site development to non-residential uses.

4.1.1 Seasonal Considerations

Groundwater Remediation

Free product recovery operations are affected by seasonal conditions. In the absence of groundwater pumping, product accumulation thickness in the recovery wells is primarily governed by natural water table fluctuations (attributed to the seasons or atmospheric pressure systems) and not necessarily related to the remedial activity. The free product recovery rate increases during the summer months when the groundwater table is lower, making free product in the smear zone more available for recovery.

Soil Remediation

The placement and compaction of the cold batch material was temporarily delayed due to cold weather conditions during the winter of 1993/94. Replacement of a 12 - inch sewer pipeline in AEC 8 as discussed below in Section 5.6, was also delayed until the spring of 1995 due to the onset of winter. The frozen ground surface encountered during the 1995 winter season prohibited placement and compaction of the cold batch to meet the required engineering specifications.

The cold weather severely limited the placement and compaction of the cold batch processed material onto the ground. The cold batch could not be placed and compacted onto the frozen ground surface to meet the specified compaction guidelines used for this project: New Jersey Department of Transportation (NJDOT) Standard Specifications for Road and Bridge Construction, 1989; Section 302.09 Compaction, Shaping, and Finishing. Under NJDOT section 303.09. the cold batch material shall be compacted to 95% of the referenced maximum density. The frozen ground surface conditions only allowed for 85% compaction of the referenced maximum cold batch density. As a result, the placement and compaction of the cold batch was temporarily delayed. Additionally, the cold weather conditions limited the application of the 2-inch I-5 asphalt topcoat. With the ground surface or sub-base being 20 degrees Fahrenheit or below, no paving was permitted under Section 404.12, (Weather Conditions), in the NJDOT Standard Specifications for Road and Bridge Construction, 1989.

When the ambient temperature was 40 degrees Fahrenheit and rising, the placement and compaction of the cold batch material resumed along with the addition of the 2-inch I-5 asphalt topcoat in the spring of 1995. Under these ambient weather conditions the engineering specifications for the cold batch and asphalt topcoat could be met. The placement of the final asphalt topcoat in the western parcel was completed on December 8, 1994. The placement and compaction of the cold batch in the eastern parcel resumed on April 17, 1995 under weather

conditions suitable for proper engineering applications. Final capping of the eastern parcel was completed on April 26, 1995.

4.1.2 Soil Investigations

In general, soil contamination at the Stanley site mainly consists of heavy metals, particularly lead as well as arsenic and zinc, and total petroleum hydrocarbons (TPHCs). Phase III investigations determined that site surface soils at various AECs are also contaminated with polycyclic aromatic hydrocarbons (PAH) compounds. Additionally, a small concentrated area of soil on the east parcel was found to contain elevated concentrations of volatiles, particularly tetrachloroethene, trichloroethene, and cis-1,2 dichloroethene. The VOC contaminated soils were addressed by excavation and off-site disposal. The remaining contaminated soils were addressed by partial excavation, formulation of a cold batch asphalt mix using contaminated soils, and placement of an impervious cap using cold batch asphalt processing and a hot mix top coat. A summary of key analytical results of soil sampling locations and results are included in Appendices A and B. Appendix A includes tables depicting a summary of ENVIRON soil sampling locations, depths, parameters and analytical results. Appendix B includes summary tables of ENSR soil sample locations, depths, parameters and analytical results.

ENSR submitted a Petition for Variance from the Technical Requirements for remediation delineation and post-remediation sampling for the Stanley Tools site on February 14, 1994, which was approved on June 21, 1994. On behalf of Stanley Tools, ENSR proposed to use existing soil data, historical groundwater data, and data from samples subsequently proposed to the NJDEP to fully characterize the subject site. The site specific conditions and technical basis for the variance are the following:

- Historic fill material has been documented at the Stanley site as well as the surrounding area, including two ISRA sites within one mile of the Stanley property. Fill material covers nearly the entire Stanley site, varying in depth from about 2 to 10 feet. Based upon available information, this historic fill material is believed to contain contaminants including, but not limited to, priority pollutant metals, PAHs, and polychlorinated biphenyls (PCBs). The nature of fill material is such that sporadic areas of contamination and hot spots make delineation of areas specifically impacted by site operations difficult, if not impossible.

- The entire site was being remediated by capping. Since Stanley Tools remediated the entire site, the further delineation of individual AECs was not necessary.

- The entire area surrounding the site has been subject to heavy industrial use for at least 75 years and regional contamination from other sources is likely.

- An extensive amount of delineation data has been collected at this site, beginning over 8 years prior to the effective date of the Technical Requirements for Site Remediation. Approximately four hundred soil samples and 40 monitoring wells have been installed at this 6 acre site. In addition, because the site was remediated by capping and has been adequately delineated, post-remediation soil sampling was not necessary in many cases.

As agreed with the NJDEP in meetings on January 18 and 26, 1994, this variance from the Technical Requirements for Site Remediation was appropriate for the remedial action workplan at the Stanley Tools site due to the expected difficulties in delineation sampling due to the presence of historic fill material, the capping of the entire site, the extensive amount of analytical data collected prior to the adoption of the Technical Requirements, and regional contamination issues.

Installation of an asphalt cap at the site reduced the potential direct contact exposure pathway to soil contamination and minimized the impact of soil contaminants to the groundwater. Contaminated soils in most of the AECs were incorporated into the cold batch asphalt recycling used to create a 6- to 9-inch sub-base for a final 2-inch cap over the site. The use of cold batch recycling has been demonstrated to be an effective stabilization removal technique for TPHCs, base neutrals, metals, PCBs, and volatile organic compounds. It was agreed that it would not be necessary to increase the amounts of soil to be actively remediated unless, on an AEC by AEC basis, the contaminants in soil have impacted groundwater in the immediate area of the AEC and/or if a "source area" existed that could potentially have a significant future impact on groundwater. Much of the metals, PCB and base neutral contaminants identified during sampling, has been excavated and incorporated into the cold batch material and placed over the site as an asphalt sub-base material. Therefore, the analytical data presented on the figures in Appendix C represent pre-remedial subsurface conditions.

Forty-seven AECs have been identified at the Stanley Tools site based on site reconnaissance, a review of past operations, and an examination of existing sampling data. In addition, several other areas of environmental concern were identified during the course of remedial investigations/actions. A summary of remedial investigations completed in these areas are described in Section 5.1. Appendix A contains summary tables of soil sample names, location, depths, parameters, and analytical results for all Phase I, II, III and IV soil samples collected previously by ENVIRON from October 1986 through August 1993. Soil sample names, location, depths, parameters and analytical results for all Phase V and VI soil samples collected by ENSR

from October 1993 through April 1995 are presented in the summary tables in Appendix B. A summary of soil sample results of ENVIRON and ENSR sampling events are depicted on the figures in Appendix C. All ENSR analytical results presented in these tables and figures were compared to the NJDEP Impact to Groundwater Soil Cleanup Criteria. According to the NJDEP, the Impact to Groundwater Soil Cleanup Criteria are appropriately applied to the subject site since Stanley Tools has completed remedial capping of the entire site and has agreed to accept a DER negating the need for comparison to Non-residential and Residential Direct Contact Soil Cleanup Criteria[1].

4.1.3 Groundwater Investigations

Thirty-eight monitoring wells and six free-phase product recovery wells currently exist at the site. Monitoring well and recovery well locations are shown on Figure 4-1. A total of ten rounds of groundwater sampling have been conducted to date. Not every well was sampled in every round. Previous groundwater sampling events at the site include the following:

ENVIRON Investigations

- November 1986
- December 1991
- January 1992
- June 1993

ENSR Investigations

- September 1993
- May 1994
- August 1994
- November 1994
- February 1995
- May 1995

The results of previous groundwater investigations indicated that VOC contamination is the primary concern in several shallow wells on the eastern parcel of the Stanley site. The groundwater contaminants in this area include tetrachloroethylene, trichloroethylene, and 1,2 trans-dichloroethylene. The shallow wells on the western parcel of the site primarily contain TPHCs, the source of which is believed to have been the former underground storage tanks in

[1] Stanley does not necessarily agree with NJDEP's position in this regard.

AECs 24 and 25 near these well locations. In addition, floating fuel-oil product, the source of which is believed to have been the former USTs at AECs 23, 24, and 25, was detected in several monitoring wells on the western parcel of the site. Contaminated groundwater is being addressed in part through a free-product recovery system for oil floating on the groundwater (see Section 4.2).

Data collected during the most recent groundwater sampling event and historical sampling events have been used to evaluate concentration variations of specific compounds over time. Analytical results received for all sampling events have been summarized in Table 4-1.

Throughout the course of the groundwater monitoring program, only vinyl chloride and tetrachlorethene have historically exceeded the ACLs proposed by ENSR/Stanley December 1, 1994. For the November 1994 groundwater sampling round, trichloroethene concentrations above the ACLs were found in three wells. The elevated VOC concentrations in these wells, as well as those found in monitoring wells located in the vicinity of AEC 8, are believed to be a transient phenomena associated with the soil disturbance and potential flushing that resulted from source control (contaminated soil removal) measures related to the clay pipe in the eastern portion of the site.

As indicated in the December 1, 1994 submittal, ENSR/Stanley propose to address vinyl chloride and tetrachloroethene contamination in the groundwater by a combination of source removal and monitoring. Source removal measures related to VOC contaminated soil in the eastern portion of the site was completed by excavation and off-site disposal of approximately 230 cubic yards of VOC contaminated soils. ENSR/Stanley proposed to monitor for VC and PCE semi-annually (twice per year at six month intervals) for a period of three years to measure the progress of natural attenuation at the site. The annual fall groundwater sampling event will also include the sampling and analysis of TCE and cis- and trans-1,2-DCE, as requested by the NJDEP in their May 16, 1995 letter approval of the semi-annual sampling program.

Monitoring wells MW-2, MW-9, MW-10, MW-18, MW-19, MW-20, MW-21, MW-24, MW-37, MW-39 and MW-40 will be included in the semi-annual sampling program. Free product wells MW-15, MW-16, MW-29 and MW-36 will not be sampled, but free product will be measured. In addition, water levels will also be measured semi-annually from MW-1, MW-4 through 8, MW-13, MW-22, MW-30, MW-31, MW-32 and MW-33 which will not be sampled.

At the end of the three-year time period following the November 1997 round, ENSR/Stanley will further evaluate the data and propose an appropriate course of action. A three year time period is proposed as a sufficient time period to evaluate the effectiveness of source removal at reducing the area of contamination. If both vinyl chloride and tetrachloroethene are maintained

Table 4-1
Summary of Historical Groundwater Sample Collection Data for Key Compounds (ug/l)
November 1986 through May 1995
Stanley Tools – Newark, New Jersey

COMPOUNDS	MW-01									MW-02								
	11/3/86	12/16/91	1/20/92	6/25/93	9/28/93	5/18/94	8/23/94	11/21/94	2/22/95	11/3/86	12/16/91	1/20/92	6/25/93	9/28/93	5/18/94	8/23/94	11/21/94	5/23/95
ARSENIC (TOTAL)				ND	ND								ND	ND				ND
ARSENIC (DISSOLVED)					ND									ND				ND
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	***1.7***	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	***1.3***	***1.2***	***1.1***	***1.3***	***1.4***	ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)	15			350	ND					23			230	41	64.3	ND		33.5
ZINC (DISSOLVED)					ND									13 J	45	ND		29.1

COMPOUNDS	MW-03									MW-04								
	11/3/86	12/16/91	1/21/92	6/25/93	9/28/93	5/19/94	8/25/94	11/22/94	2/23/95	11/3/86	12/16/91	1/21/92	6/25/93	9/28/93	5/19/94	8/25/94	11/22/94	2/23/95
ARSENIC (TOTAL)				ND	ND								2.4 J	ND				
ARSENIC (DISSOLVED)					ND									ND				
CHLOROBENZENE	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	***4J***	ND	ND	ND	ND	0.8J	ND	ND	***1.7***	***65***	***33.4***	***31.5***	***13.8***	***47***	***32***	***30***	ND	***17***
TRICHLOROETHENE	ND	***2.4J***	ND	ND	***1.2***	ND	ND	ND	0.44	***4***	***3.46***	***3.56***	ND	***4***	***3.4***	***2.6***	***2.3***	***2.3***
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)	18			260	40	26				34			200	ND	16.8			
ZINC (DISSOLVED)					17J	23.6								14J	ND			

COMPOUNDS	MW-05									MW-06								
	11/3/86	12/16/91	1/21/92	6/22/93	9/28/93	5/17/94	8/26/94	11/23/94	2/24/95	11/3/86	12/16/91	1/21/92	6/22/93	9/28/93	5/17/94	8/26/94	11/23/94	2/24/95
ARSENIC (TOTAL)				ND	ND					5			5	***21***	***10.1***	ND	***24***	5.8
ARSENIC (DISSOLVED)					ND									18	8.6	ND	13	7.5
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
TETRACHLOROETHENE	ND	ND	ND	***2.71 J***	***3.3***	***2.1***	***1.2***	ND	***3***	ND	ND	ND	ND	ND	ND			
TRICHLOROETHENE	ND	ND	ND	***8.33***	***9.9***	***4.4***	***2.2***	ND	***8.1***	ND	ND	ND	ND	ND	ND			
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
ZINC (TOTAL)	696			1800	760	454	530	280		4390			***8770***	***7800***	***6680***	***7600***	***7700***	3900
ZINC (DISSOLVED)					690	250	410	170						7400	5300	7100	5400	3400

COMPOUNDS	MW-07									MW-08								
	11/3/86	12/16/91	1/21/92	6/22/93	9/28/93	5/17/94	8/26/94	11/23/94	2/24/95	11/3/86	12/16/91	1/21/92	6/23/93	9/28/93	5/18/94	8/24/94	11/22/94	2/23/95
ARSENIC (TOTAL)		ND		6.3 J	ND								ND	ND				
ARSENIC (DISSOLVED)					ND									ND				
CHLOROBENZENE	ND	ND	ND	ND	ND	ND				ND	22.5	28.9	34.3	2.2	ND	33	ND	0.23
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND				ND	ND	ND	ND	***1.4***	***1.1***	***1.2***	ND	0.83
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	***1.1***	0.87	ND	0.73
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)	1620	***15000***		1900	690	1490	2300	***27000***	1800	43			810	ND	36.8	33	59	ND
ZINC (DISSOLVED)					460	741	520	190	410					ND	15.9	ND	ND	ND

ND – Not Detected

J – Compound was detected at levels below practical quantitation limit.
The level reported is approximate.

Bold/Italic data indicates concentrations above NJGWQS, underlined data indicates concentrations above ACLs

6303-056(7)/TBL4-1.WK3

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Table 4-1
Summary of Historical Groundwater Sample Collection Data for Key Compounds (ug/l)
November 1986 through May 1995
Stanley Tools – Newark, New Jersey

(Continued)

COMPOUNDS	MW-09										MW-10									
	11/3/86	12/16/91	1/21/92	6/23/93	9/28/93	5/18/94	8/24/94	11/22/94	2/23/95	5/24/95	11/3/86	12/16/91	1/21/92	6/24/93	9/28/93	5/18/94	8/24/94	11/22/94	2/22/95	5/23/95
ARSENIC (TOTAL)				3 J	4.4J	3	ND	ND	ND	ND		***13***		2 J	5.2J	ND	ND	ND	ND	ND
ARSENIC (DISSOLVED)					ND	3.8	ND	ND	ND	ND					ND	ND	ND	ND	ND	ND
CHLOROBENZENE	ND	ND	***172***	***54.7***	***62***	***72***	8.1	***230***	***130***	***7.8***	***120***	***74***	***117***	***112***	***150***	***150***	***190***	***190***	***150***	***111***
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND	***1.4***	ND	ND	ND	ND	ND	ND	ND	ND	***4.1***	ND	***8.1***	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND	0.76	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	***69***	***340***	***183***	***27.9***	***46***	***200***	***19***	***62***	ND	ND
ZINC (TOTAL)	12			280	ND	173					48	700		140	ND	18.2				
ZINC (DISSOLVED)					ND	30.2									ND	ND				

COMPOUNDS	MW-11									MW-12							
	11/3/86	12/16/91	1/20/92	6/23/93	9/28/93	5/18/94	8/24/94	11/22/94	2/23/95	12/16/91	1/21/92	6/24/93	9/28/93	5/20/94	8/24/94	11/22/94	2/23/95
ARSENIC (TOTAL)				ND	ND							6.6 J	4.9 J	ND	ND	ND	ND
ARSENIC (DISSOLVED)					ND								ND	ND	ND	ND	ND
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
TETRACHLOROETHENE	***22***	***7J***	***6.21***	***3.37 J***	***10***	***4.1***	***5.5***	***13***	***6.3***	ND	ND	ND	ND	ND			
TRICHLOROETHENE	***6***	ND	ND	ND	0.58J	ND	0.5	ND	***1.5***	ND	ND	ND	ND	ND			
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	***54***	1.7	ND	ND	ND	ND	ND			
ZINC (TOTAL)	21			710	ND	26	28	120	36			360	ND				
ZINC (DISSOLVED)					ND	ND	ND	ND	ND				ND				

COMPOUNDS	MW-13								MW-14						
	12/16/91	1/21/92	6/23/93	9/28/93	5/17/94	8/25/94	11/22/94	2/24/95	12/18/91	1/22/92	6/22/93	9/28/93	5/17/94	8/26/94	11/23/94
ARSENIC (TOTAL)			5.8 J	7.5 J	ND	7.2	***14***	***8.6***	8J		ND	ND			
ARSENIC (DISSOLVED)				6J	4.4	8.2	ND	ND				ND			
CHLOROBENZENE	ND	ND	ND	ND	ND				ND	ND	1.42 J	2.1	ND	2.7	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)			710	250	176	670	700	150	2400		1100	230	248	400	630
ZINC (DISSOLVED)				54	52.4	120	59	62				72	26	27	140

COMPOUND	MW-17					MW-18								
	12/17/91	1/21/92	6/25/93	9/28/93	5/19/94	12/16/91	1/21/92	6/24/93	9/28/93	5/19/94	8/23/94	11/21/94	2/21/95	5/23/95
ARSENIC (TOTAL)	6.2J		2.1 J	ND		7.1J		3.5 J	ND					
ARSENIC (DISSOLVED)				ND					ND					
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND	***97***	***83.8***	***23.4***	***39***	***16***	***20***	***23***	***12***	***12***
TRICHLOROETHENE	ND	ND	ND	ND	ND	***11***	***14.4***	***4.87***	***5.8***	***3.8***	***5.5***	***1.4***	***5***	***3***
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	0.87J	ND	ND	ND	ND	ND
ZINC (TOTAL)	400		310	33		2000		340	120	214				
ZINC (DISSOLVED)				ND					44	27.2				

ND – Not Detected

J – Compound was detected at levels below practical quantitation limit.
The level reported is approximate.

Bold/Italic data indicates concentrations above NJGWQS, underlined data indicates concentrations above ACLs

6303-056(7)/TBL4-1.WK3

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Table 4-1
Summary of Historical Groundwater Sample Collection Data for Key Compounds (ug/l)
November 1986 through May 1995
Stanley Tools – Newark, New Jersey

(Continued)

COMPOUND	MW-19									MW-20								
	12/16/91	1/21/92	6/24/93	9/28/93	5/18/94	8/23/94	11/21/94	2/21/95	5/23/95	12/16/91	1/21/92	6/23/93	9/28/93	5/19/94	8/24/94	11/22/94	2/23/95	5/24/95
ARSENIC (TOTAL)	***9.5J***		3.2 J	ND						4.4J		4.7 J	ND					
ARSENIC (DISSOLVED)				ND									ND					
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6
TETRACHLOROETHENE	***600***	***17.5***	***36***	***10***	***3.4***	***6.7***	***230***	***49***	***4.5***	***6.8J***	***15.4***	***9.25***	***20***	***5.5***	***7.6***	ND	***13***	***5.3***
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	***6.47***	***4.36***	***4.6***	***3.1***	***1.6***	ND	***8.9***	***3.1***
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.5	ND	ND	ND	***9.6***	***3.5***
ZINC (TOTAL)	1100		610	430	420	420	2100	360	450	320		270	49					
ZINC (DISSOLVED)				380	418	440	330	350	415				ND					

COMPOUND	MW-21									MW-22			
	12/16/91	1/21/92	6/25/93	9/28/93	5/19/94	8/24/94	11/22/94	2/23/95	5/24/95	12/16/91	6/23/93	9/28/93	5/18/94
ARSENIC (TOTAL)	***9.1J***		7.6 J	6J	***22.5***					ND	ND	ND	
ARSENIC (DISSOLVED)				7.6J	3.6							ND	
CHLOROBENZENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND
ZINC (TOTAL)	3500		1100	110	***6450***	190	***11000***	460	123	150	140	17 J	
ZINC (DISSOLVED)				69	53.9	20	70	ND	ND			ND	

COMPOUND	MW-23								MW-24								
	12/17/91	1/21/92	6/23/93	9/28/93	5/17/94	8/25/94	11/22/94	2/24/95	12/16/91	1/21/92	6/24/93	9/28/93	5/16/94	8/23/94	11/21/94	2/22/95	5/23/95
ARSENIC (TOTAL)			ND	ND					ND		2 J	ND					
ARSENIC (DISSOLVED)				ND								ND					
CHLOROBENZENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND				***240***	***1730***	***414***	***1400***	***890***	***1500***	***4500***	***9600***	***1330***
TRICHLOROETHENE	ND	ND	ND	ND	ND				***51***	***581***	***79.3***	***250***	***250***	***330***	***1700***	***1000***	***161***
VINYL CHLORIDE	ND	ND	ND	ND	ND				***16***	***63.3 J***	ND	***140***	***920***	***380***	ND	ND	ND
ZINC (TOTAL)			1100	97	205	270	250	200	230		310	140	178				
ZINC (DISSOLVED)				ND	29.2	76	22	21				140	79.5				

COMPOUND	MW-25								MW-26				
	12/18/91	1/21/92	6/22/93	9/28/93	5/17/94	8/26/94	11/23/94	2/24/95	12/18/91	1/21/92	6/23/93	9/28/93	5/17/94
ARSENIC (TOTAL)	6J		3.5 J	6.6J	***9.7***						4 J	7.4J	ND
ARSENIC (DISSOLVED)				4.1J	7.1							ND	ND
CHLOROBENZENE	ND	ND	ND	3.4	ND	ND	ND	0.81	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)	1100		920	240	423	390	***8100***	***59000***			480	400	30.2
ZINC (DISSOLVED)				32	183	67	150	670				ND	ND

ND – Not Detected

J – Compound was detected at levels below practical quantitation limit.
The level reported is approximate.

Bold/Italic data indicates concentrations above NJGWQS, underlined data indicates concentrations above ACLs

6303-056(7)/TBL4-1.WK3

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Table 4–1
Summary of Historical Groundwater Sample Collection Data for Key Compounds (ug/l)
November 1986 through May 1995
Stanley Tools – Newark, New Jersey

(Continued)

COMPOUND	MW–30				MW–31				MW–32				
	5/21/94	8/25/94	11/23/94	2/24/95	5/21/94	8/25/94	11/23/94	2/24/95	12/16/91	1/21/92	6/24/93	9/28/93	5/19/94
ARSENIC (TOTAL)	ND	***8.8***	ND	ND	***76.9***	ND	***8.5***	ND			ND	ND	
ARSENIC (DISSOLVED)	ND	8.2	ND	ND	ND	ND	ND	ND				ND	
CHLOROBENZENE	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)	283	2100	1100	89	3290	35	230	31			470	48	
ZINC (DISSOLVED)	116	900	63	81	23	ND	49	ND				ND	

COMPOUND	MW–33				MW–34				
	12/16/91	1/21/92	6/24/93	5/20/94	12/16/91	1/21/92	6/24/93	9/28/93	5/20/94
ARSENIC (TOTAL)			3 J				ND	ND	
ARSENIC (DISSOLVED)									
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)			170				ND	ND	
ZINC (DISSOLVED)									

COMPOUND	MW–35					MW–36		MW–37						MW–38
	12/16/91	1/21/92	6/22/93	9/28/93	5/17/94	12/16/91	1/21/92	9/13/93	5/16/94	8/23/94	11/21/94	2/21/95	5/23/95	9/13/93
ARSENIC (TOTAL)			ND	ND				ND	***17.1***	***44***	***8.2***	***9.3***	ND	ND
ARSENIC (DISSOLVED)				ND					ND	ND	ND	ND	ND	
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	***369***	***690***	***1700***	***4500***	***960***	***2150***	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	***58.2***	***130***	***310***	***1000***	***130***	***284***	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)			690	81				940	2410	2700	980	990	855	32
ZINC (DISSOLVED)				ND					1470	970	320	650	811	

COMPOUND	MW–39						MW–40					
	9/13/93	5/16/94	8/23/94	11/21/94	2/22/95	5/24/95	9/13/93	5/16/94	8/23/94	11/21/94	2/22/95	5/23/95
ARSENIC (TOTAL)	ND	ND	ND	ND	ND	ND	ND	***9.7***	ND	ND	***41***	ND
ARSENIC (DISSOLVED)		ND	ND	ND	ND	ND		ND	ND	ND	ND	ND
CHLOROBENZENE	ND	ND	ND	ND	0.32	0.81	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	***12.5***	***690***	***4.7***	***3.9***	***10***	***4.2***	***183***	***1200***	***4000***	***2500***	***3300***	***18200***
TRICHLOROETHENE	ND	***130***	ND	ND	***2.6***	0.96	***268***	***300***	***710***	***130***	***280***	***2820***
VINYL CHLORIDE	ND	ND	ND	ND	3.6	ND	ND	***510***	ND	ND	ND	***163***
ZINC (TOTAL)	17 J	14.5	36	ND	140	ND	99	1978	660	630	***6100***	222
ZINC (DISSOLVED)		ND	ND	ND	73	ND		128	150	67	64	ND

ND – Not Detected

J – Compound was detected at levels below practical quantitation limit.
The level reported is approximate.

Bold/italic data indicates concentrations above NJGWQS, underlined data indicates concentrations above ACLs

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the system is currently in operation. The upgraded system, consists of six passive skimmers and four active pneumatic skimming pumps to continuously recover free-phase product from the western parcel. In addition, passive free product recovery efforts have continued at monitoring well MW-36 (to the east). The product recovered from the skimming equipment is pumped to and temporarily stored in a 550-gallon above-ground holding tank to await disposal at an approved facility. To ensure effective operation of the product recovery equipment, the site is monitored on a weekly basis. The free-phase product and groundwater elevation in each monitoring well are measured and recorded during each visit. Additionally, the product recovered from wells utilizing the passive skimmers is measured and recorded during each weekly site visit. A cumulative graph for the entire product recovery program (passive and active) is presented in Figure 4-2. See Figure 4-3 for a free product isopach drawing showing the apparent free product thickness and estimated areal extent of free-phase product based on data collected on November 18, 1994.

4.3 Summary of Pre-Design Studies

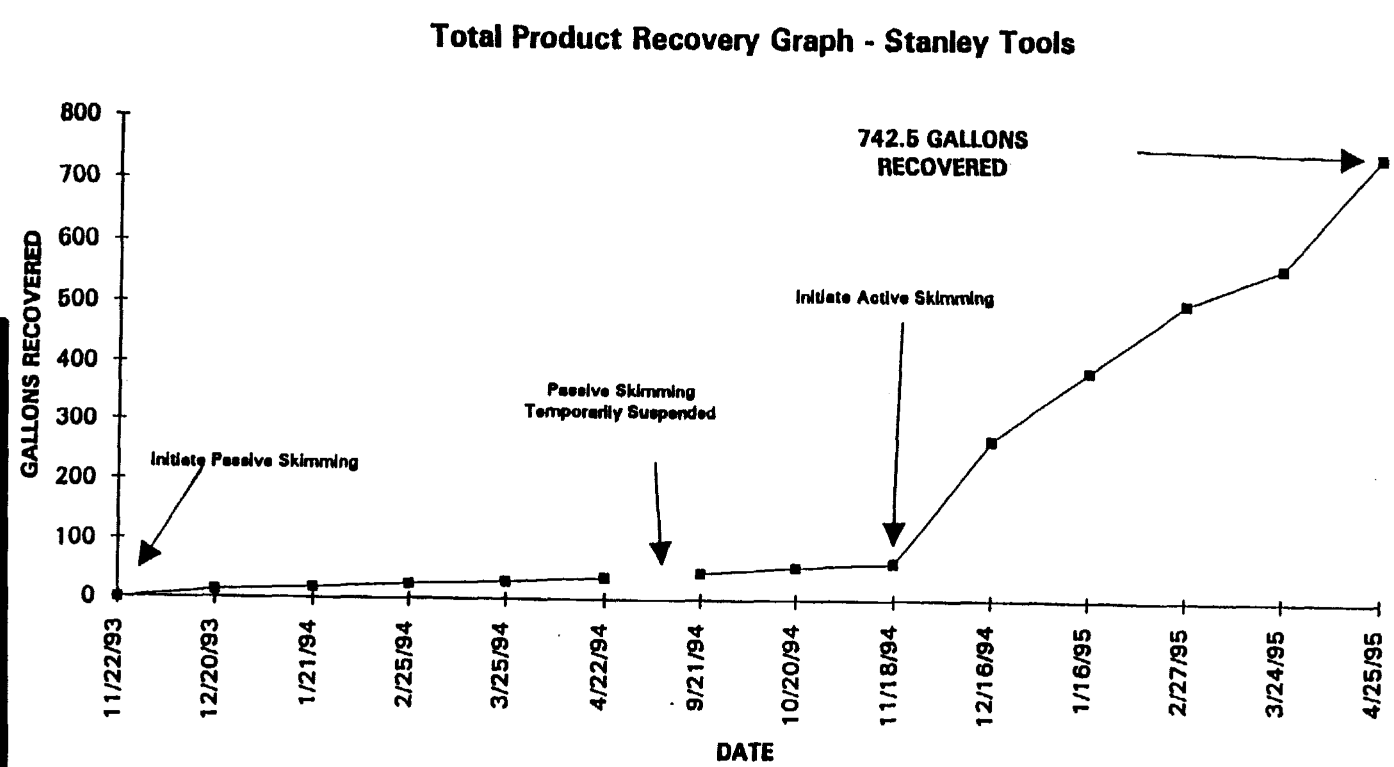
As suggested by but not required by NJDEP, a pilot study was conducted by an independent cold batch asphalt contractor to confirm the formulation requirements for cold batch asphalt recycling of soils contaminated with petroleum hydrocarbons and heavy metals at the Stanley Tools site. The results of the pilot study indicated that the cold batch asphalting of the onsite contaminated soil does produce a sound asphalt pavement and is an effective method for stabilizing contaminants. The pilot study indicated significant reduction in leachability based on the comparison of TCLP results of soil untreated and treated. The results of this pilot study are detailed in ENSR's May 19, 1994 correspondence to the NJDEP.

The cold batch material produced by the initial cold batch contractor failed to meet the quality assurance performance specifications for the processed material. This lead to the reprocessing of the material by a second independent cold batch contractor. The reprocessed materials met the performance specifications.

Prior to reprocessing the cold batch material, the second contractor performed an additional pilot study on the failed cold batch material. The pilot study conducted by the second contractor concluded that their cold batch processing techniques would significantly reduce the leachable lead levels in the failed cold batch material and provide a material also meeting the structural performance specifications.

4.4 Permit Limitations - Cold Batch Processing

The on-site production of cold batch involved the use of a pugmill mixer to blend the onsite soils



ENSR CONSULTING AND ENGINEERING

FIGURE 4-2

TOTAL PRODUCT RECOVERY GRAPH

STANLEY TOOLS – NEWARK, NEW JERSEY

DRAWN BY: SJS	DATE: 6/23/95	PROJECT #	REV.
FILE # 6303-AA	CHECKED: KMW	6303-056-60R	1

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The Stanley Works

New Britain, Connecticutt

Exhibit D

Baseline Ecological Evaluation of the former Stanley Tools' Facility at 140 Chapel Street, Newark, New Jersey

(ISRA Case No. 85178)

ENSR Consulting * Engineering * Remediation

August 1999

Document Number 6303-111-12B

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1.0 INTRODUCTION

A Baseline Ecological Evaluation (BEE) was conducted at the Former Stanley Tools, Inc. Newark Facility (ISRA Case No. E85178) located at 140 Chapel Street, in the City of Newark, Essex County, New Jersey (the Site). The BEE was conducted according to the New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program's Technical Requirements for Site Remediation (N.J.A.C 7:26E). The Technical Requirements stipulate that a BEE should be conducted at sites undergoing remediation to evaluate potential adverse impacts to protected New Jersey natural resources. The Newark Facility BEE also complies with a written request by NJDEP (letter to Ms. Jacqueline Wetzsteon dated June 24, 1999).

A BEE (N.J.A.C. 7:26E 3-11) is part of the tiered approach to ecological risk assessment and is typically conducted during the initial investigation phase for all sites by qualified individuals, using qualitative screening techniques. The results of the BEE are documented in the Site Investigation Report and used to evaluate whether a more comprehensive ecological assessment under N.J.A.C. 7:26E-4.7 is required, or whether no further action is warranted (NJDEP, 1997). The Newark Facility BEE includes an identification of ecological resources at the Site and its vicinity, assessment of contaminants of potential ecological concern (COPEC), consideration of potential ecological exposure pathways, and a summary of findings and recommendations.

2.0 CHARACTERIZATION OF ECOLOGICAL RESOURCES AND RECEPTORS AT THE NEWARK FACILITY

This section characterizes the ecological resources and receptors at or in the vicinity of the Newark Facility. Section 2.1 gives a general site description and evaluates potential on-site habitat and ecological receptors found in the vicinity. Section 2.2 describes the major ecological resource (the Passaic River) in the vicinity of the Site. Section 2.3 identifies the designated state natural resources of interest (also known as environmentally sensitive areas) at or in the vicinity of the site. Section 2.4 describes the status of protected species (i.e., threatened/endangered species) in the area.

2.1 Evaluation of On-Site Habitat

2.1.1 General Site Description

The former Stanley Tools' facility is located at 140 Chapel Street in Newark, Essex County, New Jersey. The United States Geological Survey (USGS) map depicted in Figure 1 shows the general site location. The facility is located in a heavily industrialized area in the Ironbound Section of the City of Newark that is interspersed by some limited residential areas along Chapel Street. The approximate 6-acre site is divided into two parcels by Chapel Street (see Figure 2). The larger portion of the site (i.e., the "Eastern Parcel") is approximately 4.3 acres and is bounded to the east by inactive Central New Jersey Railroad (CNJRR) tracks, to the north by Lister Avenue, to the west by Chapel Street, and to south by Albert Street (see Appendix A). The smaller "Western Parcel" (approximately 1.7 acres) is bounded by Chapel Street to the east and by industrial properties on all sides except the northwest where CNJRR tracks forms the boundary (see Appendix A).

The former Stanley Tools' facility manufactured a variety of metal tools (e.g., hammers, sledge, mauls, and wedges) until site closure in 1985. Since that date, Stanley has been conducting investigations at the facility pursuant to the Environmental Cleanup and Responsibility Act (ECRA), and more recently, the Industrial Site Recovery Act (ISRA). The site has undergone extensive remedial activities under ECRA/ISRA, including: groundwater monitoring and remediation, soil sampling and excavation, soil treatment, installation of an asphalt cap, polychlorinated biphenyl (PCB) equipment decommissioning, asbestos removal and building demolition (several site structures have been removed under oversight from the NJDEP ISRA program). The site was purchased by Ramida Rest Brown, Inc, in December 1997. Currently, the remaining buildings on the Eastern Parcel are occupied by one or more trucking firms. The Western Parcel is used for container storage.

General site and regional topography is depicted on the Elizabeth and Jersey City, United State Geological Survey (USGS) topographic quadrangles that show the site location, a portion of which is presented in Figure 1. In general, the ground surface elevation on the western parcel is relatively level and varies between 7.5 and 12.5 feet above mean sea level and slopes gently toward the stormwater catchbasin in the center of the parcel. The ground surface elevation on the eastern parcel varies between 9.5 and 13.5 feet. Based on site topography on the eastern parcel, natural surface drainage patterns for the site indicate that the general surface water flow direction is away from the facility buildings toward the corner of Chapel Street and Albert Avenue on the southwest portion of the parcel; and to the northwest toward Lister Avenue on the northern side of the facility buildings; and to the east-northeast toward Lister Avenue at the rear of the eastern parcel.

With the exception of a tiny maintained lawn by the corner of Lister Avenue and Chapel Street, the interior (i.e., within the protective fenceline) of both parcels is completely developed (see below for description). No natural or man-made surface water drainage channels or conveyances exist on or adjacent to the site. Surface runoff from the building and asphalted parking areas drains either to on-site storm drains (e.g., located in the northeast corner) or drain to those located in the bordering streets. Although the property does not extend to the shoreline of the Passaic River, the Western Parcel is situated within approximately 400 feet of the Passaic River at its closest point to the river. However, the site drainage slopes away from the Passaic River. As a result, the Passaic River is 1,200-feet in the downgradient direction from the site.

This site has an NJDEP-approved Classification Exception Area (CEA) for selected constituents in the groundwater underlying the site (NJDEP, 1998). Under N.J.A.C. 7:9-6.6(d), a CEA may be established for a site with an NJDEP-approved groundwater pollution remedy. CEAs are established in order to provide notice that the constituent standards for a given aquifer classification are not or will not be met in a localized area due to natural water quality or anthropogenic influences, and the aquifer uses are suspended in the affected area for the term of the CEA. Additional information on the CEAs for the site was previously provided to the NJDEP in Appendix A "Documentation in Support of Establishment of Classification Areas" in ENSR's 1997 response to NJDEP letter dated June 27, 1997. (ENSR, 1997).

2.1.2 On-Site Habitat

As part of a BEE, the general ecological habitat, vegetative cover types, and plant and wildlife species typically found at or near the project site are characterized. For the Newark facility, this information was gathered through a site inspection (8/10/99), review of site maps and documents, consultation with relevant state and federal agencies (see Section 2.4), and general observations. Some of this data has been previously presented (e.g., <u>Remedial Action Workplan Addendum – Eastern Parcel</u> (ENSR, 1998); other site documents).

A site reconnaissance was conducted on August 10, 1999 by a qualified ecologist (Dr. David F. Mitchell) to evaluate the potential ecological habitat and resources on or in the vicinity of the Newark facility. During the reconnaissance, both parcels were visually inspected and photodocumented, observations on ecological resources at the site, and in the vicinity were made, and potential exposure pathways investigated. No significant terrestrial habitats were identified within the immediate vicinity of the site, which is comprised of either industrial or commercial properties (e.g., paint industry, trucking firms, warehousing, etc) with interspersed pockets of residential development. In the site vicinity, vegetation exists as maintained lawns or as opportunistic weed and shrubs along fencelines or on demolished building sites. These limited patches of vegetation provide very poor function as either foraging or refuge areas for local wildlife. The ecological habitats and resources for each of the two parcels are further discussed below.

Eastern Parcel

No true terrestrial vegetative habitats or ecological resources exist at the Eastern Parcel (see representative photos in Appendix A). The entire site is developed within the protective fenceline and covered either by buildings or asphalt pavement. [Note: all open areas on both parcels have been capped with asphalt to prevent direct human contact with remaining potentially contaminated soils and to prevent infiltration of precipitation of surface water. This reduces the potential for further groundwater contamination from the impacted soils remaining above the water table (Remedial Action Report for The Stanley Tools Facility (ENSR, 1995).] Marginal vegetation exists as an approximate 5-foot wide strip of vegetated soil outside the facility fenceline and portions of Albert Street. Wildlife expected to persist on-site, if any, would be either nuisance species or those adapted to occupation of man-made structures (e.g., pigeons *(Columba spp.)* or Norway rat (*Rattus norvegicus*).

Western Parcel

No terrestrial vegetative habitats or ecological resources exist at the Western Parcel (see representative photos in Appendix A). No buildings remain on this parcel, which is entirely paved and fenced. The site is mostly occupied by stacked empty trucking containers (for sea-land shipping), associated steel stacking platforms, and truck trailers. There was no vegetation observed on-site except for limited shrubs and plants along fencelines. No wildlife was observed on-site except for unidentified bird species in the fenceline area. Adjacent areas do not provide significant terrestrial ecological habitat.

In summary, no ecological habitats or resources exist on either of the Eastern and Western parcels of the Newark Facility. Due to the lack of ecological habitat on both parcels, there were no observations of stressed or dead vegetation; discolored soil, sediment, or water; or unusual absence of wildlife; or the presence of a seep or discharge not previously identified as part of the stormwater system.

Further, there are no significant ecological resources in the immediate site vicinity, with the exception of the Passaic River located approximately 400 feet of the Western Parcel (at its closest point) which is discussed further below.

2.2 Passaic River

The major off-site ecological habitat identified in the immediate vicinity of the former Stanley Tools' Newark facility is the Passaic River. The Passaic River forms the northern boundary of the so-called Ironbound Section of Newark. The river is located to the northwest and west of the Western and Eastern Parcels, respectively. The lower Passaic River near the site is a tidal estuary and is classified as Class SE-3 [Note: the SE class is the general surface water classification applied to saline waters of estuaries.] Designated uses for Class SE-3 are secondary contact recreation, maintenance and migration of fish populations, migrations of anadromous fish, maintenance of wildlife and any other reasonable uses.

Water quality in the lower Passaic River Basin is considered poor and heavily impacted due to effluent from New Jersey permitted point pollution discharges, combined sewer overflow, non-point sources, contaminated sediments, and habitat alteration (US ACOE, 1987). The lower six miles of the Passaic River are currently being investigated by the EPA as part of the Diamond Alkali Superfund Site investigation (US EPA, 1996).

Aquatic life found in the lower Passaic River include water column receptors such as fish as well as benthic (i.e., bottom-dwelling) organisms. Typical fish species found in the lower Passaic River include striped bass (*Morone saxatilis*), white perch (*Morone americana*),) American shad (*Alosa sapidissima*), carp (*Cyprinus carpio*), alewife (*Alosa psuedoharengus*), blueback herring (*Alosa aestivalis*), Atlantic silversides (*Menida menidia*), and mummichog (*Fundulus heteroclitus*). A list of fish reported in the lower Passaic River by the US ACOE (1987) is given in Table 1. The benthic community is comprised of pollution-tolerant species including chiromid midge larvae, tubificid worms, nematodes, and polychaete worms as well as crab species (e.g., blue crab, *Callinectes sapidus*) (USACOE, 1987). The Passaic River may also provide habitat or migratory stop over areas for waterfowl including mallard duck (*Anas platyrhynchos*), black duck (*Anas rubripes*), redhead (*Aythya americana*), bufflehead (*Bucephala albeola*), and canvasback (*Aythya valisineria*) ducks (2B, Inc., 1997).

2.3 Environmentally Sensitive Areas

Environmental sensitive areas (ESAs) are designated natural resources that have been mapped, delineated, listed, managed, maintained, or protected pursuant to local, state, or federal statute, order, or regulation. According to the NJDEP guidance, designated natural resources at the site can be identified according to the NJDEP classification of Environmentally Sensitive Areas (N.J.A.C. 7:1E-1.8). Information regarding ESAs was obtained from the habitat characterization, as well as from communication with NJDEP personnel (e.g. Division of Fish, Game, and Wildlife, Bureau of Fisheries, Division of Parks and Forestry, and the Division of Natural Lands Management).

A review of potential ESAs was made for the vicinity of the former Stanley Tools Newark Facility. Table 2 presents a summary of NJDEP-designated environmentally sensitive areas and their presence or absence at the Newark Facility. No ESAs are present at the former Stanley Tools' site; however, there are two categories of ESAs known to occur in the site vicinity: Surface Waters (Passaic River) and Finfish Migratory Pathways. The following ESAs were not identified as present at the site or in the immediate site vicinity: Sources of Water Supply; Bay Islands and Barrier Island Corridors; Beaches; Dunes; Wetlands and Wetlands Transition Areas; Breeding Areas; Migratory Stopover Areas; Wintering Areas; Prime Fishing Areas; Estuarine Areas; Shellfish Harvesting Waters; Forest Areas; Federal and State Listed Rare Species; Federal and State Wilderness Areas; and Federal and State Wild and Scenic Rivers.

Further information is provided below for Surface Waters and Finfish Migratory Pathways that are mapped for the Passaic River approximately 1,200-feet downgradient of the site. A discussion of non-applicability of Sources of Water Supply; Wetlands and Wetland Transition Areas; Breeding Areas; Migratory Stopover Areas; Wintering Areas; Prime Fishing Areas; and Federal and State Listed Rare Species is also provided below.

2.3.1 Surface Waters

As shown on the USGS topographic map (Figure 1), the study area is designated as within the Passaic River Drainage Basin. No surface waters have been identified on or immediately adjacent to the site. Major surface waters in the vicinity of the site include the tidal Passaic and Hackensack Rivers. As shown on the USGS topographic map, the former Stanley Tools' facility is situated on the inside of a large meander bend along the Passaic River within 400-feet of the river. The river flows in an easterly direction north of the site, then turns in a southerly direction to the east of the site. The Passaic River is located approximately 1,200-feet from the downgradient boundary of the former Stanley Tools' site. The Hackensack River is greater than one mile east of the site.

The Passaic River in the Newark area is classified at N.J.A.C. 7:9B as saline estuarine waters (SE-3). Based on a discussion with the City of Newark Engineering Department, the portion of the former Stanley Tools' facility located on the east side of Chapel Street is within the 500-year flood plain, and the portion located on the west side of Chapel Street is within the 100-year floodplain of the Passaic River.

2.3.2 Sources of Water Supply

Based on information contained in the approved CEA documentation, neither groundwater nor surface water (i. e., Passaic River) supply drinking water at the site or in the vicinity (ENSR, 1997; 2E, Inc, 1997). With the establishment of an approved CEA for the site, aquifer use for drinking water is suspended for the duration of the CEA. Thus, no related ESAs were identified for this category.

2.3.3 Wetlands and Wetland Transition Areas

No freshwater wetlands are located on or in the immediate site vicinity. Based on a review of the National Wetlands Inventory (NWI) Map for the Elizabeth, New Jersey Quadrangle, the closest mapped wetland area is the Passaic River which is designated as an Estuarine Subtidal Open Waterbody (E1OW) on the NWI map. The closest Freshwater Wetland mapped by the NJDEP Geographic Information System (GIS) is situated approximately 1,000 feet north of the site on the opposite bank of the Passaic River. There are no significant wetlands resources mapped in the site vicinity for this ESA.

2.3.4 Breeding Areas

Breeding areas for forest area nesting species include large tracts of contiguous forest with populations of one or more of neotropical migrant species. Breeding areas for colonial waterbirds are areas occupied by one or more of fifteen species of colonially nesting birds. Breeding areas for aquatic fur-bearers include those areas which provide food, water or cover, or sites to rear young, for otter, muskrat, beaver, or mink. The nearby Passaic River may be suitable for limited nesting by common waterfowl species and suitable for use by aquatic furbearers; however, the subject property lies within a heavily populated industrial and commercial/residential area of the City of Newark, and there are no large, contiguous tracts of forested areas on or in the immediate vicinity of the site. Based on previous project experience in this area, no significant breeding areas are known to exist in the vicinity of the former Stanley Tools' facility. Therefore, there is no significant resource for this ESA in the project area.

2.3.5 Migratory Stopover Areas

Migratory stopover areas for migrant shorebirds, raptors, or passerines include all beaches and tidal marsh habitats along the Delaware Bay and Atlantic Coast from Cap May Point north to the Cohansey River and Cape May Point north to Sea Isle City. The site is outside of this geographical area. Portions of the Passaic River may be used as migratory stopover areas for these species; however, the available resources are limited due to the highly industrial/commercial developed nature of the Newark area. Therefore, there is no significant resource in the project area for this ESA.

2.3.6 Wintering Areas

Per NJAC 7:1E-1.8(a)9, Wintering Areas, include coastal tidal marshes and water areas, waterfowl concentration areas, and Atlantic white cedar stands. Specifically, they include coastal tidal marshes and water areas, (sounds, bays, rivers) from Raritan Bay South to Cape May and from Cape May North to Rancocas; waterfowl concentrations areas, which include all water areas (streams, ponds, lakes), estates, municipal and county parks, corporate lands, and Fort Dix; and Atlantic cedar stands. The Passaic River may be used by common waterfowl species and as a corridor for movement by neotropical migrant birds; however, there are no stands of Atlantic white cedar or waterfowl concentration areas in the site vicinity. Therefore, no significant resource is known to exist in the site vicinity for this ESA.

2.3.7 Prime Fishing Areas

Prime fishing areas are those tidal or water's edge areas with a significant history of local fishing use. There are two county parks in the city of Newark (Branch Brook Park Pond and Weequaic Park Lake). These public parks offer fair to good fishing quality for largemouth bass, catfish, channel fish, and sunfish; however, these parks are not situated in the vicinity of the site. There are no documented public parks that offer a significant resource for public boating and fishing access along the Passaic River in the Ironbound Section of Newark downgradient of the site. Therefore, no significant resource exists in the site vicinity for this ESA.

2.3.8 Finfish Migratory Pathways

Finfish migratory pathways are waterways (rivers, creaks, bays, inlets) serving as passages for diadromous fish to and from seasonal spawning areas, including juvenile anadromous fish which migrate in Autumn and those listed by H.E. Zich (1978)"New Jersey Anadromous Fish Inventory," NJDEP Miscellaneous Report No. 41. The Passaic River is reported to support anadromous clupeid spawning runs. According to the New Jersey Anadromous Fish Inventory, blueback herring (*Alosa aestivalis*) was confirmed in the Third River at the Route 3 Dam several miles upstream from the site. American shad (*Alosa sapidissima*) and alewife (*Alosa psuedoharengus)* were also listed as fish reported in the lower Passaic River by the US ACOE (1987).

2.3.9 Shellfish Harvesting Areas

According to NJAC 7:7E-3.2, shell fish habitat is defined as an estuarine bay or river bottom which has a history of production for hard clams, soft clams, eastern oysters, bay scallops or blue mussels. Based on a review of the State of New Jersey Shellfish Growing Water Classification Charts, all areas upstream of the Arthur Kill are condemned and closed to the harvest of clams, mussels or oysters. Therefore, no significant resource exists in the vicinity of the site for this ESA. The taking, harvesting or eating of blue crabs from the Newark Bay Complex, including the Passaic River downstream of Dundee Dam, is restricted due to NJDEP health advisories based on PCB, dioxins, and/or chlordane contamination.

2.4 Rare, Threatened, and Endangered Species Determination

As part of the evaluation of the site, threatened and endangered species and/or species of special concern were identified. ENSR contacted the New Jersey Natural Heritage Program regarding the presence of state- or federally-listed threatened or endangered species in the project area. ENSR also reviewed the habitat requirements for documented species listed for Essex County and the potential presence of similar habitat on-site supportive of these species. The site is almost entirely covered by buildings and/or pavement. The surrounding area is heavily industrialized. As a result, no natural areas which would be considered to be supportive of documented species is present on or immediately adjacent to the site. No sensitive natural habitats or threatened, endangered and rare species are known to exist in the vicinity of the site. The NJDEP Natural Heritage Program confirmed the absence of documented species and/or special habitats on the site.

3.0 CONTAMINANTS OF POTENTIAL ECOLOGICAL CONCERN (COPEC)

Contaminants of potential ecological concern (COPECs) were identified from review of site documents (ENSR, 1997; ENSR, 1998). Due to the isolation of the impacted soil from contact with ecological resources via direct contact or surfacewater runoff through capping of all open spaces of the parcels, the only media of concern is groundwater.

Investigative work conducted at the site (for review of site investigation activities see ENSR, 1998) found that various constituents in the groundwater exceeded the New Jersey Ground Water Quality Standards (NJGWQS). Monitored constituents that have been detected on one or more occasion at concentrations above the NJGWQS include: volatile organics, metals, pesticides, base/neutrals and total petroleum hydrocarbons. Many of the volatile organics, and most of the metals are among the 22 so-called "pervasive compounds" with widespread distribution within the Ironbound Section. These 22 pervasive compounds have been identified in a petition to reclassify the groundwater in the area.

Many of the metals and other compounds have been detected in isolated "hot spots" scattered throughout the site (ENSR, 1997). Focus was made on those COPECs that were more likely to migrate off-site in defined groundwater plumes and pose a concern regarding the potential discharge to the Passaic River at concentrations exceeding the NJGWQS. Based on this approach, the following key compounds were selected as candidate COPECs: benzene, toluene, xylene (for the Western Parcel), and tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2dichloroethene (DCE), and vinyl chloride (for the Eastern Parcel), which are discussed in Section 4.0.

No complete exposure pathways exist between COPECs in the soil or groundwater at the former Stanley Tools' Newark facility site and ecological receptors in the Passaic River. Asphalt pavement covering the remaining impacted soils prevent direct contact or migration of COPECs due to surface water runoff or erosion. Groundwater modeling to establish CEAs for the site demonstrate that groundwater COPECs will degrade to negligible levels well short, (i.e., greater than 500-feet) of discharge to the Passaic River. As no complete exposure pathways exist between the site and the Passaic River, no ecological risk is posed by the site to ecological resources or ESAs.

5.0 RECOMMENDATIONS AND CONCLUSIONS

A BEE was conducted for the former Stanley Tools' Newark facility to estimate the potential for ecological risk posed by site-related COPECs and to evaluate the need for additional risk investigation. NJDEP (1997) recommends that comprehensive ecological assessments are required as part of continued remedial investigations whenever a baseline ecological assessment indicates that: (1) contaminants of ecological concern exist on-site (i.e., constituents that bioaccumulate); (2) a "designated natural resource" exists on or adjacent to the site" and (3) potential contaminant migration pathways to a "designated natural resource" exist or impacts to a "designated natural resource" is apparent through observation.

The BEE for the Newark facility identified COPECs in the site groundwater and identified ESAs (surface waters, finfish migratory pathways) in the site vicinity. However, evaluation of potential exposure pathways found no complete exposure pathways existed between site-related COPECs and the identified ecological resources (Passaic River). Due to the lack of exposure pathways, no ecological risk is posed. Therefore, a comprehensive ecological investigation is not warranted at this site.

Exhibit E

STATE OF NEW JERSEY
DEPARTMENT OF ENVIRONMENTAL PROTECTION
DIVISION OF WASTE MANAGEMENT
HAZARDOUS SITE MITIGATION ADMINISTRATION
BUREAU OF INDUSTRIAL SITE EVALUATION

ENVIRONMENTAL CLEANUP RESPONSIBILITY ACT
INITIAL NOTICE
GENERAL INFORMATION SUBMISSION

(This is the first part of a two-part application form. This information must be submitted within 5 days following public release of a decision to close operations or the signing of a sales agreement or option to purchase involving an Industrial Establishment as defined in N.J.S.A. 13:1K-6, the Environmental Cleanup Responsibility Act.)

Please refer to N.J.A.C. 7:1-3.7 et seq. before filling out this form.
Answer all questions. Please print or type.

Date 3/20/85

1. A. Industrial Establishment

Name STANLEY TOOLS Telephone No. (201) 344-3545

Street Address 140 CHAPEL STREET

City or Town NEWARK State NJ Zip Code 07105

Municipality NEWARK County ESSEX

B. Lot number 1,20,21,22,23;41 Block number #2445; #2437

C. Standard Industrial Classification (SIC) Number 3423

D. Current Owner

Name THE STANLEY WORKS Telephone No. (203)225-5111

Street Address 1000 STANLEY DRIVE

Municipality NEW BRITAIN, State CT Zip Code 06053

E. If the industrial establishment discharges to a publicly-owned treatment plant, provide the name and address of that facility.

Name PASSAIC VALLEY SEWERAGE COMMISSION Telephone No. (201) 344-1800

Street Address 600 WILSON AVENUE

Municipality NEWARK State NJ Zip Code 07105

FOR DEP use only
Date Received
Notice Number

ECRA-1 5/84

F. Has an ECRA application been filed for this Industrial Establishment or location previously? NO If so, when? ______ For what reason? ______

______

Final Disposition? ______

G. How is this Industrial Establishment heated?(gas,oil,electricity) GAS

2. Previous owner(s) and current address (es)(attach additional sheets if necessary).

YEAR	Name	Current Address	Description of the Operation
1875	ATHA TOOL COMPANY	DISSOLVED	HAMMER MANUFACTURER
1913	STANLEY RULE - LEVEL	CURRENT OWNER IS SUCCESSOR SUCCESSOR BY MERGER	HAMMER MANUFACTURER
1920	THE STANLEY WORKS	1000 STANLEY DRIVE NEW BRITAIN, CT	MANUFACTURES HAMMERS, SLEDGES, MAULS & WEDGES
	* SEE BELOW		

3. If the transaction initiating an ECRA review is the closure of operations, fill in the date of public release of the decision to close the facility and enclose a copy of the public announcement.

Date of the public release of the decision 3/15/85

Is the public release enclosed? X Yes ______ No

If you checked "no", state the reason(s) ______

______

______

* BLOCK 2445
LOTS 20, 21, 22, 23

ACQUIRED FROM:

HOUSING AUTHORITY
CITY OF NEWARK
JULY 9, 1975

4. If the transaction initiating an ECRA review is an agreement of sale or option to purchase, fill in the date of the execution of that instrument plus provide a copy of the document ____________________

Name and address of the other parties to the transfer:

Name	Street Address and Municipality	Phone No.

Is a copy of the agreement of sale or option to purchase attached? _____ Yes _____ No

If you checked "no", state the reason(s) ____________________

5. Actual date proposed for closure of operations or transfer of title OCTOBER, 1985

6. Authorized agent designated to work with the Department.

Name DELIA M. CHRISTENSEN - STANLEY LABORATORY

Street Address 1309 CORBIN AVENUE

Municipality NEW BRITAIN State CT Zip Code 06053

Telephone No. (203) 225-511 Ext.5211

7. List all federal and state environmental permits applied for and received at this facility (attach additional sheets if necessary).

____________________ Check here if no permits are involved.

A. New Jersey Bureau of Air Pollution Control.

Permit Number	Date of Approval or Denial	Reason for Denial (if applicable)	Expiration Date
SEE ATTACHED SHEET			

B. New Jersey Pollutant Discharge Elimination System

Number	Discharge Activity	Date issued or Denied	Expiration Date	Body of Water Discharged into
NONE				

C. United States Environmental Protection Agency(EPA) Identification Number.

NJD002454049

D. All other federal, state, local environmental permits.

Agency Issuing Permit	Permit Number	Date of Approval or Denial	Expiration Date
PASSAIC VALLEY	20402922	2/4/82	2/4/87

3/20/85

ATTACHMENT A

A. NEW JERSEY BUREAU OF AIR POLLUTION CONTROL

PERMIT #	DATE OF APPROVAL	EXPIRATION DATE
062063	10/11/82	3/28/85
062064	10/11/82	3/28/85
018583	9/15/75	9/15/85
003236	6/23/76	10/05/86
002984	9/28/76	9/28/86
061583	6/08/82	6/08/87
060984	6/27/82	6/10/85
020514	10/01/75	10/01/85
020516	10/01/75	10/01/85
061584	6/08/82	6/08/87
062065	10/11/82	3/28/85

8. If applicable, identify all administrative orders, temporary or permanent injunctions, civil administrative penalties, civil penalties, or criminal actions concerning the environment issued against the facility during the last ten years.

__X__ Check here if no enforcement actions are involved

A. Date of Action __________

Section of Law or Statute violated __________

Type of Enforcement Action __________

Description of the violation __________

How was the violation resolved?

B. Date of Action __________

Section of Law or Statute violated __________

Type of Enforcement Action __________

Description of the violation __________

How was the violation resolved? __________

(Add additional pages, if necessary)

NEWS MEDIA ADVISORY March 15, 1985

The Stanley Tools Division of The Stanley Works today announced plans to relocate its Newark operation to an existing company plant in Shelbyville, Tennessee. The move is expected to take place during the second and third quarters of 1985. The Newark plant manufactures a line of nail hammers, ball pein hammers, sledges, mauls, wedges and specialty hammers.

In announcing the decision to move the Newark operation, Stanley Tools Division President Robert G. Widham, said: "The products made at the Newark plant have experienced increasing competitive pressure from low-cost areas of the world. In order to maintain our business position, it is necessary to consolidate certain manufacturing facilities to reduce overhead costs."

Mr. Widham noted that the company's modern Tennessee plant is Stanley's principle source of striking tools. "Consolidating these operations into one location, which has the capacity to meet our needs, will keep the high-quality hammer product lines cost-competitive," he said.

Representatives of the company's personnel department are now in Newark, working with the local plant's union representatives and the 109 hourly employees. "We have enjoyed a good, longstanding relationship with our Newark employees," Mr. Widham said, "and we want to help them in the transition to other employment opportunities."

Stanley contact: Stewart Gentsch, Vice President, Manufacturing
Stanley Tools - Newark Plant (201)344-3545
Stanley Tools - Div. Hdqts. (203)225-5111

Exhibit F

PURCHASE AGREEMENT

THIS PURCHASE AGREEMENT ("Agreement"), is made as of the 11 day of October, 1997, by and between **THE STANLEY WORKS**, a Connecticut corporation, whose address is 1000 Stanley Drive, New Britain, Connecticut 06054; Attention: Lawrence O'Keefe ("Seller") and **RAMIDA REST BROWN, INC.**, a New Jersey corporation, whose address is 4 Dartmouth Court, Livingston, New Jersey 07039 ("Purchaser"), under the following circumstances:

A. Seller is the owner of two parcels of land located in Newark, Essex County, New Jersey, one of which is situated on the west side of Chapel Street (the "West Parcel") and one of which is located on the east side of Chapel Street (the "East Parcel"). The West Parcel is more particularly described in Exhibit A attached hereto, and the East Parcel is more particularly described in Exhibit B attached hereto. The West Parcel and the East Parcel are hereinafter collectively called the "Land", and the Land, together with the buildings and other improvements thereon are hereinafter collectively called the "Property", provided that all monitoring wells, petroleum hydrocarbon recovery systems and ground water remediation systems and all other equipment and facilities used in connection with the "Current ISRA Proceeding," as hereinafter defined, shall not be part of the Property and shall not be conveyed to Purchaser.

B. Seller has performed and is performing various investigations and cleanups of soil and ground water at the Property pursuant to the New Jersey Industrial Site Recovery Act ("ISRA") (formerly named the Environmental Cleanup Responsibility Act ("ECRA") (such investigations and cleanups being hereinafter called the "Current ISRA Proceeding").

C. Purchaser desires to purchase the Property from Seller, and Seller is willing to sell the Property to Purchaser upon the terms and provisions set forth in this Agreement.

NOW, THEREFORE, in consideration of the foregoing and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Seller and Purchaser hereby agree as follows:

1. **AGREEMENT OF PURCHASE AND SALE.** Seller shall sell to Purchaser, and Purchaser shall purchase from Seller, at the price and upon the terms and conditions set forth in this Agreement, the Property, together with all appurtenant rights, privileges and easements, excepting, however, the rights and easements being reserved by Seller as hereinafter provided.

2. **PURCHASE PRICE.**

2.1 Amount and Payment. The purchase price for the Property (the "Purchase Price") shall be $625,000.00 and shall be paid as follows:

(a) the sum of $62,500.00 as an earnest money deposit shall be paid by Purchaser to Seller upon execution of this Agreement;

(b) the balance of the Purchase Price, plus or minus any net closing adjustments provided herein, shall be paid by Purchaser to Seller at the Closing, in cash, by bank wire transfer of immediately available funds to Seller's account.

The deposit in (a), together with any interest thereon, shall hereinafter be collectively referred to as the "Deposit."

2.2 Additional Consideration. Purchaser and Seller acknowledge that the Purchase Price paid by Purchaser is a portion of the consideration for Seller's sale of the Property. The remaining consideration consists of Purchaser's agreements with respect to the environmental condition of the Property as set forth in Section 4 below.

3. **CONDITION OF PROPERTY.** Seller has provided adequate opportunity to Purchaser to inspect the Property as to its condition. Except as otherwise set forth in this Agreement, Seller has made no warranties or representations as to the condition of the Property, and Purchaser acknowledges that, except as set forth in Section 4 of this Agreement, the Property is being sold "AS IS, WHERE IS, AND WITH ALL FAULTS".

4. **ENVIRONMENTAL MATTERS.**

4.1 Definitions. The following definitions shall apply to and constitute a part of this Agreement:

(a) "CERCLA" shall mean the federal Comprehensive, Environmental Response, Compensation and Liability Act, as amended.

(b) "Environmental Laws" shall mean all past, present and future federal, state and local laws (including common law), regulations, rules or ordinances, and administrative or judicial interpretations thereof, relating to pollution or protection of human health or the environment, including, without limitation, RCRA (and analogous state laws), CERCLA (and analogous state laws), ISRA, ECRA, the New Jersey Spill Act, and other laws and regulations relating to emissions, discharges, releases or threatened releases of Hazardous Substances, relating to threatened or endangered species of fish, wildlife and plants and the management or use of natural resources, or otherwise relating to the manufacture, processing, distribution, use, treatment, storage, disposal, transport, recycling, reporting, or handling of Hazardous Substances.

(c) "Hazardous Substances" shall mean pollutants, wastes, contaminants, or chemical, industrial, hazardous, or toxic materials, substances, or wastes, including, without limitation, pesticides, asbestos, or asbestos-containing materials, polychlorinated byphenyls, and petroleum, oil, or petroleum or oil products and derivatives.

(d) "NJDEP" shall mean the New Jersey Department of Environmental Protection.

(e) "RCRA" shall mean the federal Resource Conservation and Recovery Act, as amended.

4.2 Compliance with ISRA.

(a) Seller will remain solely responsible for completion of all activities required as part of the Current ISRA Proceeding; provided, however, Seller shall not be responsible or liable for any investigative or cleanup activities required as part of the Current ISRA Proceeding or pursuant to any Environmental Laws or for any other liabilities, claims, losses, damages or expenses, that arise out of or result from Purchaser's acts or omissions. Seller's responsibilities and obligations under this Section shall terminate upon the NJDEP's issuance of a no further action letter, final approval letter, or equivalent document.

(b) Purchaser agrees to cooperate fully with Seller during Seller's performance of its obligations under ISRA as provided herein. Upon the request of Seller, Purchaser or its authorized representatives shall promptly execute any and all documents required under Environmental Laws relating to the installation and operation of petroleum hydrocarbon recovery systems, ground water remediation systems, and ground water monitoring wells, including, without limitation, New Jersey Well Permit applications, and any other permit applications and documents relating to the investigation and remediation of site contamination, when execution by the site owner or operator is required under applicable Environmental Laws; provided, however, Seller agrees that it will be solely responsible for any costs associated with preparing any and all such documents required to be executed by Purchaser and Seller will be solely responsible for payment of any and all costs or fees incurred in connection with obtaining any such permits. At the Closing, and as a condition to Seller's obligations under this Agreement, Purchaser shall execute and acknowledge an easement agreement substantially in the form of, and containing the provisions set forth in, the Grant of Environmental Investigation and Remediation Easement attached hereto as Exhibit C ("Environmental Easement"), pursuant to which Seller shall have the right, exercisable by its agents, employees, consultants and contractors, to enter upon, occupy and use the Property as Seller deems necessary to (i) complete the Current ISRA Proceeding, including without limitation, installation, operation, and maintenance of monitoring wells, petroleum hydrocarbon recovery systems, ground water remediation systems, and (ii) perform any other environmental investigation or remediation activities which Seller deems necessary or appropriate.

4.3 Declaration of Environmental Restrictions.

(a) Purchaser acknowledges (i) that a Declaration of Environmental Restrictions ("DER") must be executed by the owner of the Property as a condition of leaving certain contaminants in soils at the Property in concentrations in excess of the NJDEP's soil cleanup criteria; and (ii) that the DER likely will include, without limitation, requirements that (A) the use of the

Property will be restricted to non-residential purposes; (B) ground water from the Property may not be used for any purpose; (C) without the written consent of the NJDEP, alterations, improvements or disturbances of the asphalt cap will not be permitted; (D) the asphalt surface cover at the Property must be inspected and maintained; and (E) all leases, grants, and other written transfers of all or any part of the Property or interests therein will be required to contain a provision expressly requiring all lessees, grantees and other transferees of the Property to take the Property subject to the use restrictions and to not violate any of the provisions of the DER.

(b) If Seller shall have executed a DER prior to the Closing, Purchaser shall take title to the Property pursuant to this Agreement subject to the non-residential use restriction and other restrictions imposed by the DER and shall comply with and be solely responsible for satisfying all conditions and requirements of the executed DER.

(c) If Seller shall not have executed a DER prior to the Closing or if Seller or the NJDEP determines that a previously-executed DER should be modified after the Closing, Purchaser will (i) upon final approval by the NJDEP of the contents of the DER or modification, as those contents are determined solely by agreement between the NJDEP and Seller, and at the appropriate time as determined by the NJDEP, execute the DER or modification as the owner of the Property, (ii) consent to the recording of the DER or modification with the applicable office of the county recording officer as required by ISRA, and (iii) perform any other actions necessary to effectuate the DER or modification. Purchaser shall take title to the Property pursuant to this Agreement subject to the non-residential use restriction and other restrictions imposed by the DER as it may be modified from time to time and shall comply with and be solely responsible for satisfying all conditions and requirements of the DER upon execution of the DER by Purchaser. At the Closing Purchaser shall execute and deliver to Seller a recordable document memorializing Purchaser's obligation to execute the DER or modifications thereto upon final approval by Seller and NJDEP and the power of attorney described below in this Section 4.3(c). Seller may record such document in the Essex County New Jersey Records. Purchaser, on behalf of itself and any successors-in-interest to the Property, or any portion thereon, hereby irrevocably appoints Seller its attorney-in-fact, coupled with an interest, with full power and authority to execute the DER or modifications thereto in form approved by Seller and NJDEP on behalf of Purchaser, or its successor-in-interest to title to the Property, or any portion thereof.

4.4 Indemnification.

(a) Seller agrees to indemnify, defend and hold harmless Purchaser from and against any and all losses, claims, damages, demands, liabilities, penalties, judgments, costs and expenses of whatever nature (including without limitation, reasonable attorneys' fees and costs) (but excluding consequential damages, which exclusion shall include without limitation, lost profits, business interruption or other direct or indirect economic loss) (the foregoing taking into consideration such inclusions and exclusions being collectively referred to as "Claims") incurred in connection with (i) the negligence of Seller or its environmental consultant(s) or environmental contractor(s) while performing any remediation required by this Agreement, (ii) claims by anyone not a party to this Agreement for damage to off-site properties arising from the release of Hazardous Substances that occurred prior to the Closing except to the extent such Claims arise out of or result from the acts or omissions of any person or entity other than Seller, its agents, employees, contractors, subcontractors, or invitees, (iii) any breach of Seller's obligations under this Agreement.

(b) No right to indemnification under Section 4.4(a) shall be available to Purchaser with respect to a Claim unless Purchaser shall have delivered written notice to Seller within the Notice Period (defined herein) describing in reasonable detail the facts giving rise to such Claim and stating that Purchaser intends to seek indemnification from Seller for such Claim pursuant to this Section 4.4. Notice Period means thirty (30) calendar days after the time at which Purchaser has either (i) received notice of the facts giving rise to a Claim or (ii) commenced an investigation of circumstances likely to give rise to such Claim and, in each case, where Purchaser believes or should reasonably believe that such facts or circumstances would give rise to a Claim for which Purchaser would be entitled to indemnification pursuant to this Section 4.4.

(c) Upon receipt of a notice of a Claim from Purchaser with respect to any Claim, Seller shall have the right to conduct and control, through counsel of its choosing, the defense, compromise or settlement of such Claim if Seller has agreed in writing that, if the Claim is adversely determined, Seller has an obligation to provide indemnification to Purchaser in respect thereof, and in any such case Purchaser shall cooperate in all reasonable respects in such defense. If Seller elects to conduct and control the defense of any claim, Purchaser shall have the right to employ separate counsel with respect to such Claim and to participate in the defense thereof, provided that the fees and expenses of Purchaser's counsel shall be paid by Purchaser.

(d) The indemnification contained in Section 4.4(a) hereof is personal to, and nonassignable by, Purchaser and any attempted assignment or other transfer thereof shall be null and void and of no force and effect. The term "Claims" as used in Section 4.4(a) shall not include any losses, claims, damages, demands, liabilities, penalties, judgments, costs and expenses of whatsoever nature arising out of or in connection with any covenants, indemnifications or any other agreements between Purchaser and any other person, party or entity.

4.5 <u>No Release.</u> Nothing in this Agreement is intended to release Seller from Unknown Conditions (as defined herein). Purchaser retains all rights it may otherwise have against Seller for Unknown Conditions whether or not said conditions become known prior to or after the issuance of a "no further action letter". The term "Unknown Conditions" means Hazardous Substances in soil or groundwater of a type or in a location not previously detected and reported by Seller or its representatives to NJDEP.

4.6 <u>Survival.</u> The terms and provisions of this Section 4 shall survive the Closing and the delivery of the closing documents.

DECEMBER 19, 1997

5. **THE CLOSING.**

5.1 Time and Place. The closing of the purchase and sale of the Property ("Closing") shall take place on ~~November 19~~, 1997 at a location designated by Seller, or at such other time and place as the parties may agree in writing.

5.2 Purchaser's Closing Deliveries. At the Closing, Purchaser shall deliver to Seller the following:

(a) Documentation satisfactory to Seller evidencing (i) the due formation, valid existence and good standing of Purchaser, in the jurisdiction of its formation and its good standing in the State of New Jersey; (ii) the due authorization of (A) the execution and delivery by Purchaser of this Agreement and the other agreements and documents to be executed and delivered by Purchaser hereunder, and (B) the performance by Purchaser of its obligations hereunder and thereunder;

(b) The Environmental Easement duly executed by Purchaser;

(c) The recordable document, in form acceptable to Seller, described in Section 4.3(c) (the "Memorandum");

(d) The balance of the Purchase Price as provided in Section 2.1 of this Agreement; and

(e) Such other documents as may be reasonably required by Seller to effectuate the transactions contemplated hereby.

5.3 Seller's Closing Obligations. At Closing, and upon receipt of Purchaser's Closing deliveries, Seller shall deliver to Purchaser the following:

(a) A Deed of Bargain and Sale with No Covenants or Warranties for the Property to Purchaser, subject to legal highways, covenants, conditions, restrictions and easements of record, obligations with respect to the DER as described hereunder, the Environmental Easement, the Memorandum and real estate taxes and assessments (collectively, the "Permitted Exceptions");

(b) Seller's affidavit pursuant to Section 1445 of the Internal Revenue Code that Seller is not a foreign person subject to withholding;

(c) A certified copy of a resolution of the Seller's Board of Directors authorizing the sale of the Property to Purchaser pursuant to this Agreement; and

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(d) Possession of the Property subject to Seller's rights pursuant to the Environmental Easement.

6. **ADJUSTMENTS.**

6.1 Time of Adjustments. All apportionments and adjustments shall be made upon and as of the date of Closing.

6.2 Treatment. If the net amount of the Closing adjustments results in a credit to Purchaser, then the amount thereof shall be deducted from the cash portion of the Purchase Price payable pursuant to Section 2.1(b) hereof. If the net amount of the Closing adjustments results in a credit to Seller, then the amount thereof shall be added to the cash portion of the Purchase Price payable pursuant to Section 2.1(b) hereof.

6.3 Items To Be Adjusted.

(a) Real estate taxes and installments of assessments shall be prorated based upon the most recent bills therefor issued by the applicable taxing authority prior to the Closing date, with Seller being responsible for such taxes and assessments for the period prior to the Closing date, and Purchaser being responsible for such taxes and assessments for the period on and after the Closing date.

(b) Water charges, sewer charges, and charges for electricity and other utilities, shall be prorated on the basis of the period for which such charges are assessed, with Seller being responsible for such charges for the period prior to the Closing date, and Purchaser being responsible for such charges for the period on and after the Closing date.

7. **TRANSFER TAX AND RECORDING COSTS.** Purchaser shall pay the real estate transfer tax payable in connection with the transfer of the Property, the costs of deed preparation, all recording costs and fees for the Deed. Seller shall pay the recording costs and fees for the DER, the Environmental Easement, the document memorializing Purchaser's Obligation to execute the DER, and Purchaser's appointment of Seller as its attorney-in-fact pursuant to Section 4.3(c).

8. **PURCHASER'S REPRESENTATIONS AND WARRANTIES.** Purchaser represents, warrants, and covenants to Seller as to the following matters, and shall be deemed to remake all of the following representations, warranties, and covenants as of the date of the Closing, all of which shall survive the Closing and passing of title of the Property to Purchaser.

8.1 Corporate Authority. Purchaser is a corporation, duly organized, validly existing, and in good standing under the laws of its state of formation, and has all necessary power, authority and capacity to enter into this Agreement and every other agreement and document to be entered into by Purchaser hereunder, and to perform its obligations hereunder and thereunder.

8.2 Due Execution and Authority. The execution and delivery of this Agreement by Purchaser and the performance by Purchaser of its obligations hereunder, the execution and delivery of every other document and instrument delivered pursuant hereto by or on behalf of Purchaser, and the performance by Purchaser of its obligations thereunder, and the consummation of the transactions contemplated hereby have been duly authorized by all necessary action on the part of Purchaser, and will not (a) constitute or result in the breach of, or default under, any oral or written agreement to which Purchaser is a party or by which Purchaser is bound; or (b) constitute or result in a violation of any order, decree, or injunction with respect to which the Purchaser is bound.

8.3 Further Action. All action required pursuant to this Agreement necessary to effectuate the transaction contemplated herein has been, or will be, taken promptly and in good faith by Purchaser and its agents.

9. **SELLER'S REPRESENTATIONS AND WARRANTIES.** Seller represents, warrants, and covenants to Purchaser as to the following matters, and shall be deemed to remake all of the following representations, warranties, and covenants as of the date of the Closing, all of which shall survive the Closing and passing of title of the Property to Purchaser.

9.1 Corporate Authority. Seller is a corporation, duly organized, validly existing, and in good standing under the laws of the State of Connecticut, and has all necessary power, authority and capacity to enter into this Agreement and every other agreement and document to be entered into by Seller hereunder, and to perform its obligations hereunder and thereunder.

9.2 Due Execution and Authority. The execution and delivery of this Agreement by Seller and the performance by Seller of its obligations hereunder, the execution and delivery of every other document and instrument delivered pursuant hereto by or on behalf of Seller, and the performance by Seller of its obligations thereunder, and the consummation of the transactions contemplated hereby have been duly authorized by all necessary action on the part of Seller, and will not (a) constitute or result in the breach of, or default under, any oral or written agreement to which Seller is a party or by which Seller is bound; or (b) constitute or result in a violation of any order, decree, or injunction with respect to which the Seller is bound.

9.3 Further Action. All action required pursuant to this Agreement necessary to effectuate the transaction contemplated herein has been, or will be, taken promptly and in good faith by Seller and its agents.

10. **CONDEMNATION OR CASUALTY.** If prior to the Closing date all or any portion of the Property is taken or is made subject to condemnation, eminent domain, or other governmental or quasi-governmental acquisition proceedings (a "Taking Proceeding"), or all or any portion of the Property is damaged in whole or in part as a result of a fire or other casualty, then in any such event, the Closing shall occur and not be delayed, but at the Closing Seller shall pay to Purchaser any condemnation award or insurance proceeds previously received by Seller as a result

of such Taking Proceeding or fire or other casualty and shall assign to Purchaser its rights with respect to such Taking Proceeding or fire or casualty and any unpaid award. Purchaser shall have the right to participate in the negotiations and settlement of any such claims.

11. **BROKER.** Purchaser represents and warrants to Seller that it has dealt with no agent or broker who in any way has participated as the procuring cause of the sale of the Property, except for a broker, if any, duly registered in accordance with the requirements of Michael Fox Auctioneers, Inc. ("Auctioneer"). Seller represents and warrants to Purchaser that it has dealt with no agent or broker who in any way has participated as the procuring cause of the sale of the Property, other than Auctioneer whose commission shall be paid by Seller. Any fees or commission which may be claimed shall be the sole responsibility of the party breaching the warranties set forth in this Section 11. Each party agrees to indemnify and hold harmless the other from and against any and all judgments, costs or suit, attorneys' fees and other reasonable expenses which the other may incur by reason of any action or claim made against the other by any agent, adviser, or intermediary appointed by or instructed by Seller or Purchaser, as the case may be, arising out of this Agreement or the sale of the Property to the Purchaser.

12. NOTICES. All notices permitted or required under or pursuant to the terms of this Agreement shall be in writing, and shall be deemed properly delivered to a party (i) on the day of delivery if personally delivered, (ii) on the date of receipt if delivered by overnight courier service, or (iii) on the date of postmark, if deposited in the United States mail, postage prepaid, certified or registered mail, return receipt requested, addressed to such party at its address as set forth on the first page of this Agreement or at such other address as such party may hereafter specify by written notice to the other party delivered in accordance herewith.

13. **MISCELLANEOUS.**

13.1 Confidentiality. To the extent reasonably possible and not already public knowledge, the parties agree to keep this Agreement and its terms confidential. Further, neither Seller nor Purchaser shall record this Agreement or any memorandum hereof without the prior written consent of the other party.

13.2 Captions. The captions in this Agreement are inserted only for the purpose of convenient reference and in no way define, limit, or prescribe the scope or intent of this Agreement or any part hereof.

13.3 Entire Agreement. This Agreement constitutes the entire agreement between the parties hereto and supersedes all prior understandings, if any, there being no other oral or written promises, conditions, representations, understandings, or terms of any kind as conditions or inducements to the execution hereof and none have been relied upon by either party. Any subsequent conditions, representations, warranties, or agreements shall not be valid and binding upon the parties unless in writing and signed by both parties.

13.4 Original Document. This Agreement may be executed in counterparts, each of which shall be deemed an original, but all of such counterparts taken together shall constitute one and the same agreement.

13.5 Governing Law. This Agreement shall be construed, and the rights and obligations of Seller and Purchaser hereunder shall be determined, in accordance with the laws of the State of New Jersey.

13.6 Non-Merger. In addition to the specific language of non-merger found in certain sections of this Agreement, any provision hereof which by its terms would be performed after the Closing shall survive the Closing and shall not merge in the Closing or in the deed.

13.7 No Construction Against Draftsperson. The parties acknowledge that this is a negotiated agreement, and that in no event shall the terms be construed against any party on the basis that such party or its counsel drafted this Agreement.

13.8 Independent Judgment. In executing this Agreement, each party is acting solely in reliance upon its independent judgment. Neither party is relying upon any promises, statements, or representations by any person not expressly set forth herein, and each party acknowledges that no such promises, statements, or representations have been made as an inducement to enter into this Agreement.

13.9 Damages. In the event of default by Purchaser in the consummation of the purchase of Property in accordance with the terms of this Agreement, the Deposit and interest accrued thereon shall be forfeited to Seller. In addition, Seller reserves the right to pursue any and all legal remedies available at law or equity including without limitation the right to maintain an action for specific performance or to have Property resold at the risk and expense of Purchaser.

13.10 Auctioneer Liability. Auctioneer assumes no responsibility for the condition of Property nor for the performance of this Agreement by any or all parties hereto. Purchaser hereby warrants and represents that Auctioneer has not made any statement, representation or warranty regarding the condition of the Property, zoning conditions, governmental requirements or environmental matters, guarantees or warranties of the like, upon which Purchaser has relied and which is not contained in this Agreement.

14. **BINDING EFFECT.** This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns. Notwithstanding the foregoing, Purchaser shall not, without the prior written consent of Seller, assign this Agreement in whole or in part or assign any of Purchaser's rights hereunder.

IN WITNESS WHEREOF, the parties hereto have signed this Agreement as of the date(s) provided below.

SELLER:

THE STANLEY WORKS

By: [signature]
Title: Director of Real Estate

Date: 11/24, 1997

PURCHASER:

RAMIDA REST BROWN, INC.

By: [signature]
Title: President

Date: 11/11/97, 1997

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EXHIBIT A

Legal Description - West Parcel

Description of property situate in the City of Newark, County of Essex, State of New Jersey to be known as Tax Lot 41 in Block 2437.

BEGINNING in the westerly line of Chapel Street at a point therein distant 92.74 feet from the intersection of the same with the northerly line of Lister Avenue and from thence runs:

1. Along the westerly side of Chapel Street South 3 degrees 36 minutes 25 seconds East 112.39 feet; thence

2. Along the most southerly line of lands described as the first tract, lands conveyed to the Stanley Works by deed dated April 15, 1920, and recorded September 10, 1920, in Deed Book F-64 at pages 121-124, South 40 degrees 29 minutes 35 seconds West 255.54 feet to a point; thence

3. Along the westerly line of said first tract and in part along the seventh course of lands described in Rider 1 of deed to Hug Holdings dated March 27, 1978, and recorded May 1, 1978, in Deed Book 4602 at page 630 etc., North 36 degrees 55 minutes 25 seconds West 319.00 feet to a point; thence

4. By a line through said lands in Rider 1 North 48 degrees 59 minutes 34 seconds East 177.33 feet to a point; thence

5. Still by a line through said lands in Rider 1 South 41 degrees 23 minutes 25 seconds East 10.57 feet to the terminus of the fifth course in said Rider 1; thence

6. In part along said fifth course in Rider 1 North 48 degrees 36 minutes 35 seconds East 40.83 feet to a point in same; thence

7. Along the westerly line of lands conveyed to A.J. and J.O. Pilan, Inc., by deed dated October 14, 1977, and recorded October 19, 1977, in Deed Book 4585 at page 343 South 56 degrees 48 minutes 44 seconds East 156.55 to a point; thence

8. Along the southerly line of said Deed Book 4585 at page 343 South 87 degrees 55 minutes 02 seconds East 48.09 to the point and place of BEGINNING.

Containing 77,194 square feet or 1.7721 acres of land.

This description was prepared by J. Peter Borbas, P.L.S., in accordance with a minor subdivision dated January 14, 1994.

EXHIBIT B

Legal Description - East Parcel

Description of lands occupied by The Stanley Works, being Lots 1, 21, 22 and 23 in Block 2445 in the City of Newark, Essex County, New Jersey.

BEGINNING at a point formed by the intersection of the northerly line of Albert Avenue (66 feet wide) and the easterly line of Chapel Street (60 feet wide); and runs thence

1. Along the easterly side of Chapel Street North 3° 36' 25" West 266.17 feet to the southerly side of Lister Avenue (66 feet wide); thence

2. Along the southerly side of Lister Avenue North 65° 14' 05" East 537.88 feet to a point; thence

3. Along the westerly side of the railroad property South 13° 14' 55" East 100.00 feet to an angle point in same; thence

4. Still along the railroad North 65° 14' 05" East 25.00 feet to an angle point in same; thence

5. Still along the railroad South 13° 14' 55" East 335.49 feet to the northerly line of Albert Avenue; thence

6. Along the northerly line of Albert Avenue South 86° 23' 35" West 597.87 feet to the point and place of BEGINNING.

This description was prepared by J. Peter Borbas, P.L.S., on November 27, 1994.

EXHIBIT C

Form of Environmental Easement

GRANT OF ENVIRONMENTAL INVESTIGATION AND REMEDIATION EASEMENT

THIS GRANT OF ENVIRONMENTAL INVESTIGATION AND REMEDIATION EASEMENT ("Environmental Easement") is made as of the ____ day of _________, 1997, by RAMIDA REST BROWN, INC., whose address is 4 Dartmouth Court, Livingston, New Jersey 07039 ("Grantor"), in favor of The Stanley Works, a Connecticut corporation, whose address is 1000 Stanley Drive, New Britain, Connecticut 06054 ("Grantee").

WHEREAS, Grantor is the owner of two parcels of land located in Newark, Essex County, New Jersey, one of which is situated on the west side of Chapel Street (the "West Parcel") and one of which is located on the east side of Chapel Street (the "East Parcel"). The West Parcel is more particularly described in Exhibit A attached hereto, and the East Parcel is more particularly described in Exhibit B attached hereto. The West Parcel and the East Parcel, together with the buildings and other improvements thereon, whether existing on the effective date of the Environmental Easement or thereafter, hereinafter collectively called the "Property"; and

WHEREAS, Grantor purchased the Property from Grantee and as part of the consideration for the sale of the Property by Grantee to Grantor, Grantor agreed to grant the Environmental Easement to Grantee.

NOW, THEREFORE, in consideration of the premises, the terms and conditions set forth herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree as follows:

1. Grant of Easement. Grantor hereby gives, grants, bargains, sells and conveys unto Grantee and Grantee's designated employees, representatives, agents, contractors and consultants (Grantee and such parties collectively, the "Grantee Parties"), a non-exclusive easement (the "Environmental Easement") to enter upon, occupy and use the Property, and any and all portions thereof, at all reasonable times, without further leave or consent of Grantor, for the purpose of (i) installation, operation, maintenance, repair, replacement and abandonment of monitoring wells, petroleum hydrocarbon recovery systems, and ground water remediation systems, and (ii) conducting any other investigation or remediation activities relating to or arising from the actual or threatened release or discharge of "Hazardous Substances" at or from the Property, as any of the Grantee Parties, in its sole discretion, deems necessary, convenient, or proper. "Hazardous Substances" shall mean pollutants, wastes, contaminants, or chemical, industrial, hazardous, or toxic materials, substances or wastes including, without limitation, pesticides, asbestos, or asbestos-containing materials, polychlorinated byphenyls, and petroleum, oil, or petroleum or oil products and derivatives.

2. Covenants, Conditions and Restrictions. The following covenants, conditions and restrictions are part of the grant of the Environmental Easement and shall apply to the use of the Property, run with the land and be binding on Grantor, its lessees, transferees, successors and assigns:

(a) Grantor shall not disturb, adversely affect, or interfere with any of the rights granted to the Grantee Parties hereunder.

(b) Grantor shall cooperate fully with the Grantee Parties in connection with any of the Grantee Parties' exercise of any rights granted hereunder. Upon the request of any of the Grantee Parties, Grantor or its authorized representatives shall promptly execute any and all documents required under federal, state or local law or regulations relating to the installation of ground water monitoring wells, including, without limitation, New Jersey Well Permit applications, and other permit applications and documents relating to the investigation and remediation of site contamination when execution by the site owner or operator is required under applicable laws and regulations.

(c) The Grantee Parties will conduct activities at the Property in a safe and workmanlike manner and in accordance with applicable laws and regulations.

3. Duration and Defeasance. The Environmental Easement shall exist and continue from the date first set forth above until such time as Grantee decides, in its sole discretion, that Grantee no longer has a need or potential need to enter upon, occupy and use the Property for the purposes set forth in Section 1 herein and Grantee gives Grantor written notice of such decision.

4. Enforcement. Grantor acknowledges that no adequate remedy at law exists for a violation of the Environmental Easement by Grantor or a deprivation or denial of the rights granted hereby to the Grantee Parties, and agrees that Grantee shall have the right to enforce the Environmental Easement by equitable writ or decree, including temporary and preliminary injunctive relief. In the event Grantee is required to enforce its rights hereunder, Grantor shall pay all of the costs and expenses of the Grantee Parties in connection therewith, including all attorney's fees incurred by the Grantee Parties to the fullest extent not prohibited by applicable law.

5. Assignability. The Environmental Easement shall be assignable and transferable to Grantee's successors and assigns without the necessity of the execution and delivery of any additional documentation by Grantor.

6. Revocability. The Environmental Easement shall be irrevocable until its termination as provided in Section 3 above.

7. Construction and Intention. The Environmental Easement is intended to be and shall be construed as a grant of a present and continuing interest in the Property and is not intended to be and shall not be construed as a personal right of Grantee or a mere license.

8. No Merger of Estates. There shall be no merger of the easement and related rights and interests created by the Environmental Easement with the fee estate, lien, security interest or other estate, right or interest in the Environmental Easement being held, directly or indirectly, by or for the account of any person who shall own the fee, mortgage or other interest in the Property. Except as may be expressly provided for herein, no such merger shall occur unless and until all persons at the time having such covenant interests shall join in a written instrument specifying such merger, and such instrument shall be duly recorded.

9. Binding Nature. The Environmental Easement shall run with the land and shall be binding upon Grantor and its successor and assigns and shall benefit Grantee, the Grantee Parties and their successors and assigns. The Environmental Easement shall be recorded at Grantee's expense in the records of the applicable office of the county recording office.

10. Governing Law. The Environmental Easement and the rights and obligations of the parties hereunder shall in all respects be governed by, construed and enforced in accordance with the laws of the State of New Jersey.

IN WITNESS WHEREOF, the Grantor executes and delivers the Environmental Easement with the intention of creating an instrument under seal effective as of the date first above written.

Signed, Sealed and Delivered in the presence of:	GRANTOR
	RAMIDA REST BROWN, INC.
Print Name: John Wessin	By: Stuart H Brown
	Title: President
Print Name: ________	Date: 11/11/97

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State of N.J., County of Essex, ss:

November, 1997

Be it remembered, that on this 11 day of ~~1996~~, in the County and State aforesaid, before me, the subscriber, a Notary Public authorized to take acknowledgments and proofs in said County and State personally appeared Ramida Rost, who, I am satisfied is the grantor named in and who executed the foregoing instrument and he/she did acknowledge that he/she signed, sealed and delivered the same as his/her act and deed for the uses and purposes therein expressed.

Notary Public John Wasinu
Attorney At Law
State of New Jersey

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Received & Recorded
Register's Office
Essex County, NJ
JAN 13, 11:57 AM'98
Carole A. Graves
B98000127110983608

GRANT OF ENVIRONMENTAL INVESTIGATION
AND REMEDIATION EASEMENT

THIS GRANT OF ENVIRONMENTAL INVESTIGATION AND REMEDIATION EASEMENT ("Environmental Easement") is made as of the 5th day of December, 1997, by RAMIDA REST BROWN, INC., a New Jersey corporation, whose address is 4 Dartmouth Court, Livingston, New Jersey 07039 ("Grantor"), in favor of The Stanley Works, a Connecticut corporation, whose address is 1000 Stanley Drive, New Britain, Connecticut 06054 ("Grantee").

WHEREAS, Grantor is the owner of two parcels of land located in Newark, Essex County, New Jersey, one of which is situated on the west side of Chapel Street (the "West Parcel") and one of which is located on the east side of Chapel Street (the "East Parcel"). The West Parcel is more particularly described in Exhibit A attached hereto, and the East Parcel is more particularly described in Exhibit B attached hereto. The West Parcel and the East Parcel, together with the buildings and other improvements thereon, whether existing on the effective date of the Environmental Easement or thereafter, hereinafter collectively called the "Property"; and

WHEREAS, Grantor purchased the Property from Grantee and as part of the consideration for the sale of the Property by Grantee to Grantor, Grantor agreed to grant the Environmental Easement to Grantee.

NOW, THEREFORE, in consideration of the premises, the terms and conditions set forth herein, and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the parties hereby agree as follows:

1. Grant of Easement. Grantor hereby gives, grants, bargains, sells and conveys unto Grantee and Grantee's designated employees, representatives, agents, contractors and consultants (Grantee and such parties collectively, the "Grantee Parties"), a non-exclusive easement (the "Environmental Easement") to enter upon, occupy and use the Property, and any and all portions thereof, at all reasonable times, without further leave or consent of Grantor, for the purpose of (i) installation, operation, maintenance, repair, replacement and abandonment of monitoring wells, petroleum hydrocarbon recovery systems, and ground water remediation systems, and (ii) conducting any other investigation or remediation activities relating to or arising from the actual or threatened release or discharge of "Hazardous Substances" at or from the Property, as any of the Grantee Parties, in its sole discretion, deems necessary, convenient, or proper. "Hazardous Substances" shall mean pollutants, wastes, contaminants, or chemical, industrial, hazardous, or toxic materials, substances or wastes including, without limitation, pesticides, asbestos, or asbestos-containing materials, polychlorinated byphenyls, and petroleum, oil, or petroleum or oil products and derivatives.

2. Covenants, Conditions and Restrictions. The following covenants, conditions and restrictions are part of the grant of the Environmental Easement and shall apply to the use of the Property, run with the land and be binding on Grantor, its lessees, transferees, successors and assigns:

(a) Grantor shall not disturb, adversely affect, or interfere with any of the rights granted to the Grantee Parties hereunder.

(b) Grantor shall cooperate fully with the Grantee Parties in connection with any of the Grantee Parties' exercise of any rights granted hereunder. Upon the request of any of the Grantee Parties, Grantor or its authorized representatives shall promptly execute any and all documents required under federal, state or local law or regulations relating to the installation of ground water monitoring wells, including, without limitation, New Jersey Well Permit applications, and other permit applications and documents relating to the investigation and remediation of site contamination when execution by the site owner or operator is required under applicable laws and regulations.

(c) The Grantee Parties will conduct activities at the Property in a safe and workmanlike manner and in accordance with applicable laws and regulations.

3. Duration and Defeasance. The Environmental Easement shall exist and continue from the date first set forth above until such time as Grantee decides, in its sole discretion, that Grantee no longer has a need or potential need to enter upon, occupy and use the Property for the purposes set forth in Section 1 herein and Grantee gives Grantor written notice of such decision.

4. Enforcement. Grantor acknowledges that no adequate remedy at law exists for a violation of the Environmental Easement by Grantor or a deprivation or denial of the rights granted hereby to the Grantee Parties, and agrees that Grantee shall have the right to enforce the Environmental Easement by equitable writ or decree, including temporary and preliminary injunctive relief. In the event Grantee is required to enforce its rights hereunder, Grantor shall pay all of the costs and expenses of the Grantee Parties in connection therewith, including all attorney's fees incurred by the Grantee Parties to the fullest extent not prohibited by applicable law.

5. Assignability. The Environmental Easement shall be assignable and transferable to Grantee's successors and assigns without the necessity of the execution and delivery of any additional documentation by Grantor.

6. Revocability. The Environmental Easement shall be irrevocable until its termination as provided in Section 3 above.

7. Construction and Intention. The Environmental Easement is intended to be and shall be construed as a grant of a present and continuing interest in the Property and is not intended to be and shall not be construed as a personal right of Grantee or a mere license.

EXHIBIT A

Legal Description - West Parcel

Description of property situate in the City of Newark, County of Essex, State of New Jersey to be known as Tax Lot 41 in Block 2437.

BEGINNING in the westerly line of Chapel Street at a point therein distant 92.74 feet from the intersection of the same with the northerly line of Lister Avenue and from thence runs:

1. Along the westerly side of Chapel Street South 3 degrees 36 minutes 25 seconds East 112.39 feet; thence

2. Along the most southerly line of lands described as the first tract, lands conveyed to the Stanley Works by deed dated April 15, 1920, and recorded September 10, 1920, in Deed Book F-64 at pages 121-124, South 40 degrees 29 minutes 35 seconds West 255.54 feet to a point; thence

3. Along the westerly line of said first tract and in part along the seventh course of lands described in Rider 1 of deed to Hug Holdings dated March 27, 1978, and recorded May 1, 1978, in Deed Book 4602 at page 630 etc., North 36 degrees 55 minutes 25 seconds West 319.00 feet to a point; thence

4. By a line through said lands in Rider 1 North 48 degrees 59 minutes 34 seconds East 177.33 feet to a point; thence

5. Still by a line through said lands in Rider 1 South 41 degrees 23 minutes 25 seconds East 10.57 feet to the terminus of the fifth course in said Rider 1; thence

6. In part along said fifth course in Rider 1 North 48 degrees 36 minutes 35 seconds East 40.83 feet to a point in same; thence

7. Along the westerly line of lands conveyed to A.J. and J.O. Pilan, Inc., by deed dated October 14, 1977, and recorded October 19, 1977, in Deed Book 4585 at page 343 South 56 degrees 48 minutes 44 seconds East 156.55 to a point; thence

8. Along the southerly line of said Deed Book 4585 at page 343 South 87 degrees 55 minutes 02 seconds East 48.09 to the point and place of BEGINNING.

Containing 77,194 square feet or 1.7721 acres of land.

This description was prepared by J. Peter Borbas, P.L.S., in accordance with a minor subdivision dated January 14, 1994.

EXHIBIT B

Legal Description - East Parcel

Description of lands occupied by The Stanley Works, being Lots 1, 21, 22 and 23 in Block 2445 in the City of Newark, Essex County, New Jersey.

BEGINNING at a point formed by the intersection of the northerly line of Albert Avenue (66 feet wide) and the easterly line of Chapel Street (60 feet wide); and runs thence

1. Along the easterly side of Chapel Street North 3° 36' 25" West 266.17 feet to the southerly side of Lister Avenue (66 feet wide); thence

2. Along the southerly side of Lister Avenue North 65° 14' 05" East 537.88 feet to a point; thence

3. Along the westerly side of the railroad property South 13° 14' 55" East 100.00 feet to an angle point in same; thence

4. Still along the railroad North 65° 14' 05" East 25.00 feet to an angle point in same; thence

5. Still along the railroad South 13° 14' 55" East 335.49 feet to the northerly line of Albert Avenue; thence

6. Along the northerly line of Albert Avenue South 86° 23' 35" West 597.87 feet to the point and place of BEGINNING.

This description was prepared by J. Peter Borbas, P.L.S., on November 27, 1994.

8. No Merger of Estates. There shall be no merger of the easement and related rights and interests created by the Environmental Easement with the fee estate, lien, security interest or other estate, right or interest in the Environmental Easement being held, directly or indirectly, by or for the account of any person who shall own the fee, mortgage or other interest in the Property. Except as may be expressly provided for herein, no such merger shall occur unless and until all persons at the time having such covenant interests shall join in a written instrument specifying such merger, and such instrument shall be duly recorded.

9. Binding Nature. The Environmental Easement shall run with the land and shall be binding upon Grantor and its successor and assigns and shall benefit Grantee, the Grantee Parties and their successors and assigns. The Environmental Easement shall be recorded at Grantee's expense in the records of the applicable office of the county recording office.

10. Governing Law. The Environmental Easement and the rights and obligations of the parties hereunder shall in all respects be governed by, construed and enforced in accordance with, the laws of the State of New Jersey.

IN WITNESS WHEREOF, the Grantor executes and delivers the Environmental Easement with the intention of creating an instrument under seal effective as of the date first above written.

Signed, Sealed and Delivered in the presence of:	GRANTOR
	RAMIDA REST BROWN, INC., a New Jersey corporation
ATTEST:	
Stuart H Brownstein Sec.	By: Stuart H Brownstein
Print Name: STUART H. BROWNSTEIN SECRETARY	STUART H. BROWNSTEIN
	Title: PRESIDENT
______________________	
Print Name: ______________	Date: 12/8/97

877630192

State of NEW JERSEY, County of ESSEX, ss:

I CERTIFY that on December 8, 1997, STUART H. BROWNSTEIN personally came before me and this person acknowledged under oath, to my satisfaction, that:

(a) this person signed, sealed and delivered the attached document as PRESIDENT of the corporation named in this document;

(b) the proper corporate seal was affixed; and

(c) this document was signed and made by the corporation as its voluntary act and deed by virtue of authority from its Board of Directors.

~~Notary Public~~ BARRY A. OSMUN
ATTORNEY AT LAW
OF NEW JERSEY

P:\WORDPROC\SMK\Stanley Works - Ramida Rest Brown Grant of Environmental Investigation.wpd

D-E
N-6
#2472

This Instrument Prepared by:
Stephen M. King, Esq.
Thompson Hine & Flory LLP
312 Walnut Street, 14th Floor
Cincinnati, OH 45202

DECLARATION

THIS DECLARATION ("Declaration") is made as of this 19th day of November, 1997, between THE STANLEY WORKS, a Connecticut corporation, whose address is 1000 Stanley Drive, New Britain, Connecticut 06054 ("Stanley") and RAMIDA REST BROWN, INC., whose address is 4 Dartmouth Court, Livingston, New Jersey 07039 ("Purchaser"), under the following circumstances:

A. Pursuant to Purchase Agreement dated ~~November~~ October 11, 1997, Stanley agreed to sell to Purchaser certain real property in Essex County, New Jersey, as particularly described in Exhibit A attached hereto and made a part hereof (the "Property").

B. Stanley is currently involved in an environmental investigation and cleanup proceeding (the "Current ISRA Proceeding") under the New Jersey Industrial Site Recovery Act ("ISRA") with respect to the Property. The obligations of Seller under the Current ISRA Proceeding will extend beyond the date of the transfer of the Property by Stanley to Purchaser pursuant to the Agreement.

Received & Recorded
Register's Office
Essex County, NJ
JAN 13, 11:50 AM'98
Carole A. Graves

C. As part of the Current ISRA Proceeding, the New Jersey Department of Environmental Protection ("NJDEP") requires that a Declaration of Environmental Restrictions ("DER") must be executed by the owner of the Property as a condition of leaving certain contaminants in soils at the Property in concentrations in excess of NJDEP's soil cleanup criteria. It is anticipated that the DER will likely include, without limitation, requirements that (a) the use of the Property be restricted to non-residential purposes, (b) groundwater from the Property may not be used for any purpose, (c) without the written consent of the NJDEP, alterations, improvements or disturbances of the asphalt cap will not be permitted, (d) the asphalt surface cover at the Property must be inspected and maintained, and (e) all leases, grants and other written transfers of all or any part of the Property, or interest therein, will be required to contain a provision expressly requiring all lessees, grantees or other transferees of the Property, or any portion thereof, to take the Property subject to the use provisions and to not violate any of the provisions of the DER.

D. If the DER is executed and recorded prior to Stanley finalizing its remediation activities on the Property in accordance with the Current ISRA Proceeding, the parties acknowledge that NJDEP may require certain modifications to the DER upon completion of Stanley's remediation activities on the Property in accordance with the Current ISRA Proceeding.

E. Pursuant to Paragraph 4.3(c) of the Agreement, Purchaser agreed to (i) purchase the Property subject to the restrictions set forth in Recital C hereof, (ii) execute the DER, and any modifications thereto, upon final approval of the NJDEP, (iii) consent to the recording of the DER, and any modifications thereto, and (iv) perform any other actions necessary to effectuate the DER, and any modifications thereto.

F. Stanley and Purchaser hereby desire to execute and record this document to memorialize Purchaser's obligations as set forth in Recital C, D, and E above, as established pursuant to Paragraph 4.3(c) of the Agreement, and the power of attorney set forth in Paragraph 4.3(c) of the Agreement.

NOW, THEREFORE, in consideration of the foregoing premises and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, Stanley and Purchaser agree as follows:

1. Stanley and Purchaser hereby agree and acknowledge that upon transfer of title to the Property to Purchaser, the Property shall be subject to the following restrictions:

(a) the use of the Property shall be restricted to non-residential purposes;

(b) the groundwater from the Property may not be used for any purpose;

(c) without the written consent of the NJDEP, alterations, improvements, or disturbances of the asphalt cap on the Property will not be permitted;

(d) the asphalt surface cover at the Property must be inspected and maintained: and

(e) all leases, grants and other written transfers of all or any part of the Property or interests therein will be required to contain a provision expressly requiring all lessees, grantees or other transferees of the Property to take the Property subject to the foregoing restrictions.

The foregoing restrictions shall terminate and be of no further force and effect upon the execution and recording of the DER in the Essex County, New Jersey records.

2. Purchaser and any successor-in-interest to the Property shall (i) upon final approval by the NJDEP of the contents of the DER, and any modifications thereto, as those contents are determined solely by agreement between the NJDEP and Stanley and at the appropriate time as determined by the NJDEP, execute the DER, or any modifications thereto, as the owner of the Property, (ii) consent to the recording of the DER, or any modifications thereto, with the appropriate office of the county recording officer as required by ISRA, and (iii) perform any other actions necessary to effectuate the DER, or any modifications thereto.

3. Purchaser, on behalf of itself and any successors-in-interest to the Property, or any portion thereof ("Purchaser Parties"), hereby irrevocably appoints Stanley its attorney-in-fact, coupled with an interest, with full power and authority to execute and record the DER, and any modifications thereto, in form approved by Stanley and NJDEP on behalf of Purchaser and the Purchaser Parties and to perform any and all other acts as necessary to effectuate the DER, and any modifications thereto, on behalf of the Purchaser and the Purchaser Parties. The foregoing power of attorney shall not be affected by disability or dissolution of the principal or lapse of time, it being the grantor's intention that Stanley shall have all the powers stated above irrespective of any disability, incompetence, dissolution or incapacity that Purchaser or the Purchaser Parties may suffer at any future time or times. Purchaser, on behalf of itself and the Purchaser Parties, ratifies all that Stanley shall lawfully do and cause to be done by virtue of the power of attorney set forth in this paragraph, and Purchaser, on behalf of itself and the Purchaser Parties, declares that any act or thing lawfully done by Stanley pursuant to the power of attorney set forth in this paragraph shall be binding on Purchaser and the Purchaser Parties.

4. The foregoing power of attorney and all of the covenants and conditions of this Declaration shall run with land which is a part of the Property and shall be binding upon Purchaser and all owners, lessees and occupants of, and their respective successors-in-interest to, the Property, or any portion thereof or interest therein, and shall inure to the benefit of Stanley, its successors and assigns. If any provision of the Declaration is held to invalid by any court of competent jurisdiction, the invalidity of such provision shall not effect the validity of any of the other provisions hereof. All such other provisions shall continue unimpaired in full force affect.

WITNESS the execution hereof as the date first set forth above.

THE STANLEY WORKS

ATTESTED BY:

Assistant Secretary

By: [signature]
Its: Director of Real Estate
Name: Frank M. Hawley

RAMIDA REST BROWN, INC.

ATTESTED BY:

[signature]
Stuart H. Brownstein
Secretary

By: [signature]
Its: President
Name: Stuart H. Brownstein

EXHIBIT A

Legal Description - West Parcel

Description of property situate in the City of Newark, County of Essex, State of New Jersey to be known as Tax Lot 41 in Block 2437.

BEGINNING in the westerly line of Chapel Street at a point therein distant 92.74 feet from the intersection of the same with the northerly line of Lister Avenue and from thence runs:

1. Along the westerly side of Chapel Street South 3 degrees 36 minutes 25 seconds East 112.39 feet; thence

2. Along the most southerly line of lands described as the first tract, lands conveyed to the Stanley Works by deed dated April 15, 1920, and recorded September 10, 1920, in Deed Book F-64 at pages 121-124, South 40 degrees 29 minutes 35 seconds West 255.54 feet to a point; thence

3. Along the westerly line of said first tract and in part along the seventh course of lands described in Rider 1 of deed to Hug Holdings dated March 27, 1978, and recorded May 1, 1978, in Deed Book 4602 at page 630 etc., North 36 degrees 55 minutes 25 seconds West 319.00 feet to a point; thence

4. By a line through said lands in Rider 1 North 48 degrees 59 minutes 34 seconds East 177.33 feet to a point; thence

5. Still by a line through said lands in Rider 1 South 41 degrees 23 minutes 25 seconds East 10.57 feet to the terminus of the fifth course in said Rider 1; thence

6. In part along said fifth course in Rider 1 North 48 degrees 36 minutes 35 seconds East 40.83 feet to a point in same; thence

7. Along the westerly line of lands conveyed to A.J. and J.O. Pilan, Inc., by deed dated October 14, 1977, and recorded October 19, 1977, in Deed Book 4585 at page 343 South 56 degrees 48 minutes 44 seconds East 156.55 to a point; thence

8. Along the southerly line of said Deed Book 4585 at page 343 South 87 degrees 55 minutes 02 seconds East 48.09 to the point and place of BEGINNING.

Containing 77,194 square feet or 1.7721 acres of land.

This description was prepared by J. Peter Borbas, P.L.S., in accordance with a minor subdivision dated January 14, 1994.

Legal Description - East Parcel

Description of lands occupied by The Stanley Works, being Lots 1, 21, 22 and 23 in Block 2445 in the City of Newark, Essex County, New Jersey.

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1. Along the easterly side of Chapel Street North 3° 36' 25" West 266.17 feet to the southerly side of Lister Avenue (66 feet wide); thence

2. Along the southerly side of Lister Avenue North 65° 14' 05" East 537.88 feet to a point; thence

3. Along the westerly side of the railroad property South 13° 14' 55" East 100.00 feet to an angle point in same; thence

4. Still along the railroad North 65° 14' 05" East 25.00 feet to an angle point in same; thence

5. Still along the railroad South 13° 14' 55" East 335.49 feet to the northerly line of Albert Avenue; thence

6. Along the northerly line of Albert Avenue South 86° 23' 35" West 597.87 feet to the point and place of BEGINNING.

This description was prepared by J. Peter Borbas, P.L.S., on November 27, 1994.

STATE OF Connecticut)
) SS:
COUNTY OF Hartford)

I certify that on 11/13, 1997, Frank M. Harvey, Dr. Real Estate of The Stanley Works, a Connecticut corporation, personally came before me and stated to my satisfaction that this person: (a) was the maker of the attached Declaration; and (b) was authorized and did execute this Declaration as Dr. Real Estate of The Stanley Works, the entity named in the Declaration.

Notary Public
My commission expires 10/31/99

STATE OF New Jersey)
) SS:
COUNTY OF Essex)

I certify that on December 8, 1997, Stuart H. Brownstein, President of Ramida Rest Brown, Inc., a New Jersey corporation, personally came before me and stated to my satisfaction that this person: (a) was the maker of the attached Declaration; and (b) was authorized and did execute this Declaration as President of Ramida Rest Brown, the entity named in the Declaration.

~~Notary Public~~ Barry A. Osmun
Attorney at Law
of New Jersey

H:\WPDOCS\smk\DECLARATION - STANLEY WORKS-RAMIDA.wpd

877630199

BK5516PG 092

This Instrument Prepared By:
Stephen M. King, Esq.
Thompson Hine & Flory LLP
312 Walnut Street, 14th Floor
Cincinnati, OH 45202

QUITCLAIM DEED

THIS DEED is made on this 19th day of November, 1997 BETWEEN THE STANLEY WORKS, a Connecticut corporation, whose address is 1000 Stanley Drive, New Britain, CT 06053 ("Grantor") and RAMIDA REST BROWN, INC., a New Jersey corporation, whose post office address is 4 Dartmouth Court, Livingston, New Jersey 07039 ("Grantee").

Grantor grants and conveys the property described on Exhibit A attached hereto and made a part hereof (the "Property") to Grantee. This transfer is made for the sum of $625,000. Grantor acknowledges receipt of this money.

Tax Map Reference (NJSA 46:15-2.1)

Municipality of Newark
Block Nos.: 2437 and 2445
Lot Nos.: 1, 21, 22, 23 and 41
Account No.: ____________________

This Deed is called a Quitclaim Deed. Grantor makes no promises as to ownership or title, but simply transfers whatever interest Grantor has in the Property to Grantee.

This Deed is executed as of the date set forth above.

THE STANLEY WORKS,
a Connecticut corporation

By: ____________________
Name: FRANK M. HARVEY
Its: DIRECTOR of Real Estate

ATTESTED BY:
____
Assistant Secretary

D-B
C-$625,000
N-2
P-4
#2472

Received & Recorded
Register's Office
Essex County, NJ
JAN 13, 11:52 AM'98
Carole A. Graves
B980001271D983603
Consideration: $625,000
R. T. T.: $2900.00

877630200

EXHIBIT A

Legal Description - West Parcel

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4. By a line through said lands in Rider 1 North 48 degrees 59 minutes 34 seconds East 177.33 feet to a point; thence

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2. Along the southerly side of Lister Avenue North 65° 14' 05" East 537.88 feet to a point; thence

3. Along the westerly side of the railroad property South 13° 14' 55" East 100.00 feet to an angle point in same; thence

4. Still along the railroad North 65° 14' 05" East 25.00 feet to an angle point in same; thence

5. Still along the railroad South 13° 14' 55" East 335.49 feet to the northerly line of Albert Avenue; thence

6. Along the northerly line of Albert Avenue South 86° 23' 35" West 597.87 feet to the point and place of BEGINNING.

This description was prepared by J. Peter Borbas, P.L.S., on November 27, 1994.

STATE OF Connecticut)
)SS:
COUNTY OF Hartford)

I certify that on 11/13, 1997, FRANK M. HARVEY, Director of Real Estate of The Stanley Works, a Connecticut corporation, personally came before me and stated to my satisfaction that this person:

(a) was the maker of this Deed;

(b) was authorized to and did execute this Deed, and as the DIR. REAL ESTATE of The Stanley Works, the entity named in this Deed.

Notary Public

MY COMMISSION EXPIRES 10/31/99

H:\WPDOCS\smk\QUITCLAIM DEED - STANLEY WORKS-RAMIDA.wpd

NOTICE ABOUT PUBLICATION

THIS DOCUMENT IS A PUBLICATION AND CAN BE FOUND IN THE SITE FILES LOCATED AT THE U.S. EPA SUPERFUND RECORDS CENTER, 290 BROADWAY, 18TH FLOOR, NY, NY 10007.
TO MAKE AN APPOINTMENT TO VIEW THE MATERIAL PLEASE CONTACT THE RECORD CENTER AT (212) 637-4308.

Copy document title page (shrink to 70%) and cut it to fit the doted text box.
Attach label with Document ID# to this page.

Exhibit G

877630204

61-66*
Rev. 2/94

Office of the Secretary of the State of Connecticut

I, the Connecticut Secretary of the State, and keeper of the seal thereof, DO HEREBY CERTIFY, that

STANLEY WORKS THE

a STOCK corporation under the Connecticut General Statutes was filed in this office on June 4, 1901.

Insofar as the records of this office reveal, the corporation is in existence.

Susan Bysiewicz

Secretary of the State

Date Issued: April 30, 2003

Exhibit H

CERTIFICATE OF AMENDMENT

STOCK CORPORATION

Office of the Secretary of the State
30 Trinity Street / P.O. Box 150470 / Hartford, CT 06115-0470 / new / 1997

FILING #0001892300 PG 01 OF 12 VOL B-00219
FILED 09/15/1998 01:50 PM PAGE 02085
SECRETARY OF THE STATE
CONNECTICUT SECRETARY OF THE STATE

1. NAME OF CORPORATION:

The Stanley Works

2. THE CERTIFICATE OF INCORPORATION IS (check A., B. or C.):

______ **A. AMENDED.**

______ **B. AMENDED AND RESTATED.**

__x__ **C. RESTATED.**

3. TEXT OF EACH AMENDMENT / RESTATEMENT:

See attached Restated Certificate of Incorporation.

(Please reference an 8 1/2 X 11 attachment if additional space is needed)

(CONN. - 1264 - 1/1/97)

CT System

877630206

STATE OF CONNECTICUT
OFFICE OF THE SECRETARY OF THE STATE } SS. HARTFORD

I hereby certify that this is a true copy of record in this Office
In Testimony whereof, I have hereunto set my hand, and affixed the Seal of said State, at Hartford, this 30th day of April A.D. 2003

Susan Bysiewicz
SECRETARY OF THE STATE

FILING #0001892300 PG 02 OF 12 VOL B-00219
FILED 09/15/1998 01:50 PM PAGE 02086
SECRETARY OF THE STATE
CONNECTICUT SECRETARY OF THE STATE

4. VOTE INFORMATION (check A., B. or C.)

_____ **A. The resolution was approved by shareholders as follows:**

(set forth all voting information required by Conn. Gen. Stat. section 33-800 as amended in the space provided below)

__X__ **B. The amendment was adopted by the board of directors without shareholder action. No shareholder vote was required for adoption.**

_____ **C. The amendment was adopted by the incorporators without shareholder action. No shareholder vote was required for adoption.**

5. EXECUTION

Dated this 11th day of September, 19 98

Jennifer O. Estabrook	Assistant General Counsel and Assistant Secretary	[signature]
Print or type name of signatory	**Capacity of signatory**	**Signature**

FILING #0001892300 PG 03 OF 12 VOL B-00219
FILED 09/15/1998 01:50 PM PAGE 02087
SECRETARY OF THE STATE
CONNECTICUT SECRETARY OF THE STATE

RESTATED CERTIFICATE OF INCORPORATION
OF THE STANLEY WORKS

Section 1. That The Stanley Works, a corporation organized and hitherto and still conducting its business under the joint stock laws of this state, and located and having its principal office at New Britain, may, and shall hereafter, have the right to exercise its corporate franchise, and have and enjoy all the rights, powers and privileges herein granted, and whenever it shall have accepted this resolution by a vote of its shareholders, at a meeting duly called for that purpose, may conduct and carry on its business under the provisions hereof, exclusively, in the same way and manner and to the same extent in all respects as if said corporation had been originally organized under a charter containing like provisions; and the capital stock of said corporation, the shareholders therein, and the number of shares by them respectively held, shall be the same as now existing in said joint stock corporation, inclusive of original and increased capital stock thereof.

Section 2. Said Stanley Works shall be and remain a body politic and corporate by the name of The Stanley Works, located at said New Britain, and shall have and enjoy its said corporate franchise, and all the rights and privileges herein granted, for the purpose of manufacturing, buying, and selling, and dealing in all kinds of metal and hardware, and all articles composed in whole or in part of metal, wood, or other substance, which it shall deem expedient, and to do such other things as are incident to the prosecution of said business, and to exercise such mercantile powers as may be convenient and necessary for the successful prosecution of said business, and in and by said corporate name said corporation shall be and is hereby vested with the title to all the goods, chattels, lands, buildings, machinery, property, choses in action, trademarks, and effects of whatever nature heretofore acquired by and now belonging to said corporation, and is hereby authorized and empowered in addition thereto to purchase, take, hold, occupy, and enjoy to itself and assigns any such property, real, personal, or of whatever other nature, including letters patent, as will enable it the better to carry on said business to advantage, and the same may manage, control, convey, lease, sell, and dispose of at pleasure, and may take and execute leases of real estate.

Section 3. The stock of said corporation shall consist

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of 210,000,000 shares, divided into 200,000,000 common shares of the par value of $2.50 per share and 10,000,000 preferred shares, without par value. The Board of Directors is authorized to fix and determine the terms, limitations and relative rights and preferences of the preferred shares, including, without limitation, any voting rights thereof, to divide the preferred shares into and to issue the same in series, to fix and determine the variations among series to the extent permitted by law, and, within the limits from time to time of the authorized but unissued common shares to provide that preferred shares, or any series thereof, may be convertible into the same or a different number of common shares.

Shareholders, whether of common or preferred shares, shall have no pre-emptive rights with respect to any of the common or preferred shares. Upon conversion of preferred shares into common shares, the preferred shares surrendered in such conversion shall be retired unless the Board of Directors takes specific action that the same be canceled.

Without limiting the powers now possessed by it, said corporation is vested with all the privileges and powers enumerated in the general corporation laws of this state as now existing or hereafter amended. Its officers and directors shall have the powers given to directors and officers of corporations in said general corporation laws. Said corporation is authorized to add to and otherwise amend its corporate powers and purposes in the extent and manner permitted to corporations organized under said general corporation laws, provided that the subject matter of such changes could have been lawfully inserted in the original certificate of incorporation of a corporation organized under said general corporation laws and provided further that certificates of such changes be filed with the secretary of the state as therein provided.

Section 4. The stock, property and affairs of said corporation shall be managed by a Board consisting of not less than nine nor more then eighteen directors, the exact number to be determined by the Board of Directors from time to time. The Board of Directors shall be divided into three classes designated Class I, Class II and Class III. Such classes shall be as nearly equal in number as the then total number of directors constituting the entire Board permits. At the 1983 Annual Meeting of Shareholders, or any special meeting in lieu thereof, four Class I, five Class II and five Class III directors shall be elected for initial terms expiring at the next succeeding annual meeting, the second succeeding annual meeting and the third succeeding annual meeting, respectively, and when their respective successors are elected and qualified. At each annual meeting of shareholders after 1983, the directors chosen to succeed those in the class whose terms expire shall be elected by shareholders for terms expiring at the third succeeding annual meeting after election, or for such lesser term as may be appropriate in the particular case in order to assure that the number of directors in each class shall remain constant, and when their respective successors are elected and qualified. The directors may increase the number of directorships by the concurring vote of directors holding a majority of the directorships. Any vacancy on the Board that is created by an increase in the number of directors may be filled for the unexpired term by the concurring vote of directors holding a majority of the directorships, which number of directorships shall be the number prior to the vote on the increase. Any other vacancy which occurs on the Board may be filled for the unexpired term by the concurring vote of a majority of the remaining directors in office, though such remaining directors are less than a quorum, and though such majority is less than a quorum, or by action of the sole remaining director in office. Newly created directorships or any decrease in directorships resulting from increases or decreases in the number of directors shall be so apportioned among the classes of directors as to make all the classes as nearly equal in number as possible. No reduction of the number of directorships shall remove or shorten the term of any director in office.

Any director may be removed from office but only for cause by the affirmative vote of the holders of at least a majority of the voting power of the shares entitled to vote for the election of directors, considered for this purpose as one class.

Notwithstanding the foregoing, whenever the holders of any one or more classes or series of preferred stock issued by said corporation shall have the right, voting separately by class or series, to elect directors at an annual or special meeting of shareholders, the election, term of office, filling of vacancies and other features of such directorships shall be governed by any terms of this Certificate of Incorporation of said corporation applicable thereto, and such directors so elected shall not be divided into classes pursuant to this Section 4 unless expressly provided by such terms.

In the event of a vacancy among the directors so elected by the holders of preferred stock, the remaining preferred directors may fill the vacancy for the unexpired term.

Section 5. The existing by-laws of said corporation shall continue in force until the same are altered or repealed by the Board of Directors or a vote of the shareholders; the shareholders, at any legal meeting, shall have power to alter or repeal said by-laws, and to make or establish such other by-laws, rules and regulations, not inconsistent with the laws of this state or with Section 10 of this Certificate of Incorporation, as they may deem expedient for the management of the affairs of the corporation, and may alter or repeal the same; and said directors may, as often as the interests of the shareholders require and the affairs of said corporation will permit, declare a dividend of profits on each share, which shall be paid by the treasurer of said corporation.

Section 6: (a) The affirmative vote of the holders of not less than 80% of the outstanding shares of capital stock of the corporation entitled to vote shall be required for the approval or authorization of any "Business Combination" (as hereinafter defined) involving an "Interested Shareholder" (as hereinafter defined); provided, however, that the 80% voting requirement shall not be applicable if:

(1) The "Continuing Directors" (as hereinafter defined) of the corporation by a two-thirds vote have expressly approved such Business Combination either in advance of or subsequent to such Interested Shareholder's having become an Interested Shareholder; or

(2) The following conditions are satisfied:

(A) The aggregate amount of the cash and the "Fair Market Value" (as hereinafter defined) of the property, securities or "Other Consideration" (as hereinafter defined) to be received per share by holders of capital stock of the corporation in the Business Combination, other than the Interested Shareholder involved in the Business Combination, is not less than the "Highest Per Share Price" or the "Highest Equivalent Price" (as hereinafter defined) paid by the Interested Shareholder in acquiring any of its holdings of the corporation's capital stock; and

(B) A proxy statement complying with the requirements of the Securities Exchange Act of 1934, as amended, shall have been mailed to all shareholders of the corporation for the purpose of soliciting shareholder approval of the Business Combination. The proxy statement shall contain at the front thereof, in a prominent place, the position of the Continuing Directors as to the advisability (or inadvisability) of the Business Combination and, if deemed advisable by a majority of the Continuing Directors, the opinion of an investment banking firm selected by the Continuing Directors as to the fairness of the terms of the Business Combination, from the point of view of the holders of outstanding shares of capital stock of the corporation other than any Interested Shareholder.

Such 80% vote shall be required notwithstanding the fact that no vote may be required or that a lesser percentage may be specified by law or in any agreement with any national securities exchange or otherwise.

(b) For purposes of this Section 6:

(1) The term "Business Combination" shall mean

(A) any merger, consolidation or share exchange of the corporation or a subsidiary of the corporation with or into an Interested Shareholder, in each case without regard to which entity is the surviving entity;

(B) any sale, lease, exchange, transfer or other disposition, including without limitation a mortgage or any other security device, of all or any "Substantial Part" (as hereinafter defined) of the assets of the corporation (including without limitation any voting securities of a subsidiary of the corporation) or a subsidiary of the corporation to an Interested Shareholder (in one transaction or a series of transactions);

(C) any sale, lease, exchange, transfer or other disposition, including without limitation a mortgage or any other security device, of all or any Substantial Part of the assets of an Interested Shareholder to the corporation or a subsidiary of the corporation;

(D) the issuance or transfer of any securities of the corporation or a subsidiary of the corporation by the corporation or any of its subsidiaries to an Interested Shareholder (other than an issuance or transfer of securities which is effected on a pro rata basis to all shareholders of the corporation);

(E) any recapitalization that would have the effect of increasing the voting power of an Interested Shareholder;

(F) the issuance or transfer by an Interested Shareholder of any securities of such Interested Shareholder to the corporation or a subsidiary of the corporation (other than an issuance or transfer of securities which is effected on a pro rata basis to all shareholders of the Interested Shareholder);

(G) the adoption of any plan or proposal for the liquidation or dissolution of the corporation proposed by or on behalf of an Interested Shareholder; or

(H) any agreement, contract or other arrangement providing for any of the transactions described in this definition of Business Combination.

(2) The term "Interested Shareholder" shall mean and include any individual, partnership, corporation or other person or entity which, as of the record date for the determination of shareholders entitled to notice of and to vote on any Business Combination, or immediately prior to the consummation of such transaction, together with its "Affiliates" and "Associates" (as defined in Rule 12b-2 of the General Rules and Regulations under the Securities Exchange Act of 1934 as in effect at the date of the adoption of this Article by the shareholders of the corporation [collectively, and as so in effect, the "Exchange Act"]), are "Beneficial Owners" (as defined in Rule 13d-3 of the Exchange Act) in the aggregate of 10% or more of the outstanding shares of any class of capital stock of the corporation, and any Affiliate or Associate of any such individual, corporation, partnership or other person or entity. Notwithstanding any provision of Rule 13d-3 to the contrary, an entity shall be deemed to be the Beneficial Owner of any share of capital stock of the corporation that such entity has the right to acquire at any time pursuant to any agreement, or upon exercise of conversion rights, warrants or options, or otherwise.

(3) The term "Substantial Part" shall mean more than 20% of the fair market value, as determined by two-thirds of the Continuing Directors, of the total consolidated assets of the corporation and its subsidiaries taken as a whole as of the end of its most recent fiscal year ended prior to the time the determination is being made.

(4) The term "Other Consideration" shall include, without limitation, Common Stock or other capital stock of the corporation retained by shareholders of the corporation other than Interested Shareholders or parties to such Business Combination in the event of a Business Combination in which the corporation is the surviving corporation.

(5) The term "Continuing Director" shall mean a director who is unaffiliated with any Interested Shareholder and either (A) was a member of the Board of Directors of the corporation immediately prior to the time that the Interested Shareholder involved in a Business Combination became an Interested Shareholder or (B) was designated (before his or her initial election or appointment as director) as a Continuing Director by a majority of the then Continuing Directors.

(6) The terms "Highest Per Share Price" and "Highest Equivalent Price" as used in this Section 6 shall mean the following: if there is only one class of capital stock of the corporation issued and outstanding, the Highest Per Share Price shall mean the highest price that can be determined to have been paid at any time by the Interested Shareholder for any share or shares of that class of capital stock. If there is more than one class of capital stock of the corporation issued and outstanding, the Highest Equivalent Price shall mean with respect to each class and series of capital stock of the corporation, the amount determined by a majority of the Continuing Directors, on whatever basis they believe is appropriate, to be the highest per share price equivalent of the Highest Per Share Price that can be determined to have been paid at any time by the Interested Shareholder for any share or shares of any class of securities of capital stock of the corporation. In determining the Highest Per Share Price and Highest Equivalent Price, all purchases by the Interested Shareholder shall be taken into account regardless of whether the shares were purchased before or after the Interested Shareholder became an Interested Shareholder. Also, the Highest Per Share Price and the Highest Equivalent Price shall include any brokerage commissions, transfer taxes, soliciting dealers' fees and other expenses paid by the Interested Shareholder with respect to the shares of capital stock of the corporation acquired by the Interested Shareholder. In the case of any Business Combination with an Interested Shareholder the Continuing Directors shall determine the Highest Per Share Price and

the Highest Equivalent Price for each class and series of capital stock of the corporation.

(7) The term "Fair Market Value" shall mean (A) in the case of stock, the highest closing sale price during the 30-day period immediately preceding the date in question of a share of such stock on the Composite Tape for New York Stock Exchange Listed Stocks, or, if such stock is not quoted on the Composite Tape, on the New York Stock Exchange, or, if such stock is not listed on such Exchange, on the principal United States securities exchange registered under the Securities Exchange Act of 1934 on which such stock is listed, or, if such stock is not listed on any such exchange, the highest closing bid quotation with respect to a share of such stock during the 30-day period preceding the date in question on the National Association of Securities Dealers, Inc. Automated Quotations System or any system then in use, or if no such quotations are available, the fair market value on the date in question of a share of such stock as determined by a two-thirds vote of the Continuing Directors in good faith; and (B) in the case of property other than stock or cash, the fair market value of such property on the date in question as determined by a two-thirds vote of the Continuing Directors in good faith.

(c) The determination of the Continuing Directors as to Fair Market Value, Highest Per Share Price, Highest Equivalent Price, and the existence of an Interested Shareholder or a Business Combination shall be conclusive and binding.

(d) Nothing contained in this Section 6 shall be construed to relieve any Interested Shareholder from any fiduciary obligation imposed by law.

(e) The fact that any Business Combination complies with the provisions of paragraph (a)(2) of this Section 6 shall not be construed to impose any fiduciary duty, obligation or responsibility on the Board of Directors, or any member thereof, to approve such Business Combination or recommend its adoption or approval to the shareholders of the corporation, nor shall such compliance limit, prohibit or otherwise restrict in any manner the Board of Directors, or any member thereof, with respect to evaluations of or actions and responses taken with respect to such Business Combination.

(f) Notwithstanding any other provisions of this Certificate of Incorporation or the By-Laws of the

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corporation, the affirmative vote of the holders of not less than 80% of the outstanding shares of capital stock shall be required to amend, alter, change, or repeal, or adopt any provisions inconsistent with, this Section 6.

Section 7. Said corporation by vote of its directors may from time to time acquire and hold its own stock for distribution among its employees, and may so distribute and sell such stock at not less than par among such of its employees, not including any director, as in the judgment of its directors will best promote the interests of said company or the welfare of its employees, in such manner and upon such terms as said directors may by vote determine, provided said corporation shall not at any time acquire or hold more than ten percentum of its outstanding capital stock for such purposes, and provided no such stock shall be acquired when said company is insolvent or so as to render it immediately insolvent. Said corporation shall not vote upon shares of its own stock so acquired or held.

Section 8. Said company is hereby authorized to transmit power, for use in its manufacturing business only, from the town of Kent to its manufacturing plant in New Britain by means of poles, wires, fixtures, or otherwise, over land or private rights of way which it may purchase from the owners thereof or persons interested therein, and in so doing may cross over highways with its wires, without running along said highways, however; said rights to cross such highways to be exercised in conformity with the provisions of sections 3903 to 3910, both inclusive, of the general statutes.

Section 9. (The act validating certain conveyances from the American Tube and Stamping Company to The Stanley Works approved April 12, 1927 and an act validating a conveyance from The Stanley Works to Northeastern Steel Corporation approved April 20, 1955 are both omitted becauce no longer significant as a part of the Certificate of Incorporation of The Stanley Works.)

Section 10. Except to the extent prohibited by law, the Board of Directors shall have the right (which, to the extent exercised, shall be exclusive) to establish the rights, powers, duties, rules and procedures that from time to time shall govern the Board of Directors and each of its members, including without limitation the vote required for any action by the Board of Directors, and that from time to time shall affect the directors' power to manage the business and affairs of the corporation; and no bylaw shall be adopted by shareholders which shall impair or impede the implementation of the foregoing.

Section 11. A director of the corporation shall not be personally liable to the corporation or its shareholders for monetary damages in excess of the compensation received by the director for serving the corporation during the year of the violation to the extent such exemption from liability is permitted under the Connecticut Stock Corporations Act as the same exists. If the Connecticut Stock Corporations Act is amended hereafter to authorize corporate action further limiting or eliminating the personal liability of directors for monetary damages, then the liability of a director of the corporation shall be limited or eliminated to the fullest extent permitted by the amended Connecticut Stock Corporations Act. Any repeal or modification of this Section or adoption of an inconsistent provision shall not adversely affect any right or protection of a director of the corporation existing at the time of such repeal or modification.

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EXHIBIT I

Year	Name	Current Address	Status/Nature of Transaction	Date and State of Incorporation	Relationship to The Stanley Works	Agent for Service of Process
1875	Atha Tool Company	None	Dissolved – 1917	1888 – New Jersey	None	Unknown
1913	Stanley Rule & Level	None	Purchased Stock of Atha Tool Company, March 1913	Incorporated by Act of Legislation, May 1858, Connecticut	Merged into The Stanley Works, May 1, 1920	Unknown
1920	The Stanley Works	1000 Stanley Drive New Britain, CT	Incorporated 1852 by Act of Legislation, Connecticut	1852, Connecticut	N/A	CT Corporation System, One Commercial Plaza, Hartford, CT 06103
1997	Ramida Rest Brown	140 Chapel Street Newark, NJ	Sale of property	New Jersey, date unknown	Purchaser of 140 Chapel Street property	Unknown

The Stanley Works

New Britain, Connecticut

ENSR

Remedial Action Report for the Stanley Tools Facility Newark, New Jersey

ENSR Consulting and Engineering

July 1995

Document Number 6303-056-60R

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The actual costs of this program have been $3,306,000. A summary breakdown of costs is as follows:

- Investigation ($525,900)
- Engineering ($555,900)
- Remediation ($1,290,000)
- Operation ($196,000)
- Monitoring ($576,700)
- Administrative ($161,500)

- 10 cubic yards of oil stained wood blocks, 260 gallons of VOC contaminated purge water, 2,500 pounds of contaminated soil, and 120 gallons of No. 2 fuel oil was also disposed of at S&W Waste, Inc. in South Kearny, New Jersey.

- paving of 189,000 square feet with 2" hot mix asphalt.

Groundwater Remediation

ENSR is currently conducting a semi-annual groundwater sampling program for the VOC contaminants of concern. Product recovery activities to address free product on the western parcel are ongoing. Specifically, ENSR:

- Installed passive skimmers to recover free-phase product from wells in the western parcel. Passive skimmers have recovered 76 gallons of product in 66 weeks;

- Installed an active skimming system, utilizing four recovery wells. The active skimming system has recovered 1,413 gallons in 29 weeks;

Building Demolition

While not required by ISRA, several buildings were demolished as part of the site remediation to make the site more useful and more attractive for sale. This work entailed:

- Demolition of six buildings amounting to approximately 18,000 square feet of space.

- Offsite disposal of:

  - 120 cubic yards of asbestos containing materials at the HMDC facility in North Arlington, New Jersey;

  - 440 cubic yards of concrete at SDG Aggregate, Inc. in Carteret, New Jersey;

  - 140 cubic yards of construction debris (including metal and wood) at the A. Fiore & Sons facilities in Kearny and Newark, New Jersey; and

  - 5600 pounds and 4 cubic yards of bird excrement at Cycle Chem, Inc. in Elizabeth, New Jersey.

Based on the results of the investigations, plans were formulated for addressing the soil and groundwater problems. The remediation activities conducted and ongoing are summarized as follows:

Soil Remediation

Given the generally widespread nature of the contamination, the presence of non-native fill already present on the site, and the nature of contamination (principally metals and petroleum hydrocarbons) the approach to remediation was to (1) excavate surficial soils (and selected hot spots to a greater depth), (2) recycle those soils by cold-batch asphalt processing, (3) return processed soils to the site by placing and compacting in the excavated areas (thereby forming a solid sub-base), and (3) capping the entire site (including those areas not excavated but which previously were paved) with a 2" top coat of conventional hot mix asphalt. VOC contaminated soils, which could not be processed into cold-batched material, pursuant to the air permit approved on November 3, 1994, were excavated and disposed of off-site as hazardous waste. The work related to soil remediation consisted of the following:

- excavation of approximately 3,000 cu. yds of contaminated soil
- cold-batch processing of over 2,700 cu. yds of contaminated soil
- off-site disposal of the following:
  - eighteen cubic yards of TPHC contaminated soil and 231 cubic yards of VOC/Lead contaminated soil was disposed of by S&W Waste, Inc. in South Kearny, New Jersey with ultimate disposal of VOC/lead contaminated soil at Stablex Canada, Inc. in Blainville, Quebec;
  - ten tons of undrained transformer equipment containing transformer oil was disposed of at ENSR Operations in Canton, Ohio;
  - approximately 165 gallons (3 drums) of transformer mineral oil, one 55-gallon drum of VOC contaminated water and one 55-gallon drum of No. 2 fuel oil was disposed of at Cycle Chem, Inc. in Elizabeth, New Jersey;
  - approximately 4,515 gallons of an oil and water mixture was disposed of at Lancaster Oil Corporation in Lancaster, Pennsylvania;

- Installation of 40 monitoring wells, including 5 off-site wells;
- Ten rounds of samples from the monitoring wells covering the time period from November 1986 to May 1995.

The results of this investigation found that:

- The site consists of imported fill material with a thickness of 2 to 10 feet underlain by native deposits of interbedded sands, silts and clays. Bedrock (siltstone) occurs at approximately 120 feet below grade.
- Groundwater occurs at a depth from 4 feet to 13 feet below the surface with an average depth across the site of 8.2 feet.
- The groundwater occurs in three aquifers-- a water table aquifer, lower overburden aquifer and bedrock aquifer.
- Soil contamination is widespread throughout the site above the Residential and Non-Residential Direct Contact Soil Cleanup Criteria. The principal contaminants are metals (primarily lead) with selected areas of petroleum hydrocarbons and chlorinated VOCs. The principal VOC contaminants are: tetrachloroethene (PCE), trichloroethene (TCE) and cis-1,2-dichloroethene (cis-1,2-DCE). The VOCs were determined to originate from a deteriorated sewer line and sump on the eastern portion of the site.
- There is an area of free-phase petroleum hydrocarbons on the water table of the western parcel which has moved off-site. This LNAPL is believed to have originated from former USTs on the western parcel.
- There is an area of suspected DNAPL contamination under the eastern portion of the site which appears to have originated from the deteriorated sewer line and sump. The principal VOC contaminants are the same as those found in the soil in this area. Certain groundwater contaminants exceed NJDEP New Jersey Groundwater Quality Criteria - Class IIA (NJAC 7:9-6).
- There is no downgradient use of groundwater anywhere within a one-mile radius of the site. Area groundwater is not used for potable water supply nor for incorporation into products.
- There are no impacts to surface waters, wetlands, or sensitive ecosystems near the site.

EXECUTIVE SUMMARY

The former Stanley Tools site is located at 140 Chapel Street between Lister Avenue and Albert Avenue, in a predominantly industrial/commercial portion of the City of Newark, Essex County, New Jersey. The site is comprised of two parcels of land separated by Chapel Street. The western portion is approximately 1.8 acres; the eastern portion approximately 4.4 acres. Stanley Tools, a division of The Stanley Works, manufactured hand tools (e.g. hammers, sledges, mauls, and wedges) at this location from 1875 to 1985 when the facility was closed. At closing, the site was fully developed with about 90 percent of the property paved or under roof.

Site investigations required by ECRA/ISRA were initiated in March 1985 by ENVIRON who conducted four phases of investigation and some limited remediation. In September, 1993 ENSR took over the investigation and completed the remediation.

The investigation work involved:

- Detailed site reconnaissance;
- Review of aerial photographs;
- Review of available data related to local and regional geology and water usage;
- Determination of groundwater users within a one-mile radius of the site;
- Review of Sanborne and insurance maps from 1950, 1931 and 1908;
- Review of available site utility drawings;
- Installation of over 400 soil borings and test pits throughout the site;
- A soil vapor survey for a portion of the site;
- Collection and analysis of hundreds of soil samples for volatile organics, semi-volatile organics, PCBs, total petroleum hydrocarbons, and metals throughout the site;
- Inspection of building interiors and sampling and analysis of selected portions of interior wood-block floors;

1.0 INTRODUCTION

This Remedial Action Report (RAR) has been prepared by ENSR Consulting and Engineering (ENSR) on behalf of Stanley Tools Inc. (Stanley), for New Jersey Department of Environmental Protection (NJDEP) approval of remedial actions undertaken to address contaminated soil at the former Stanley Tools, Newark, New Jersey facility under the requirements of the Industrial Site Recovery Act (ISRA).

The cleanup was implemented in accordance with the cleanup plan approval letter issued by the NJDEP for the Stanley site on May 19, 1993 and in remedial action approval letters dated January 3, 1994; April 29, 1994; June 21, 1994; October 24, 1994; November 17, 1994; and March 22, 1995, as modified by various letters and other correspondence for the Stanley Tools, Newark facility (Case No. 85178).

This RAR presents and discusses all data and information collected in compliance with the Technical Requirements for Site Remediation, specifically, all data and information collected in compliance with N.J.A.C. 7:26E-6.3 (specific remedial action requirements) and N.J.A.C. 7:26E-6.4 (specific post-remedial action requirements).

The remedial phase of the Stanley site related to soil contamination primarily involved the excavation and recycling of the soils onsite using a cold batch processing technique. The soils were recycled into cold batch material and placed and compacted back into the excavations as a sub-base, utilizing the cold batch material as a cap. Finally, a 2-inch thick asphalt topcoat was placed and compacted over the entire site to serve as the finish to the cap. The remedial phase also included: 1) removal and off-site disposal of selected soil "hot spots", 2) removal and off-site disposal of VOC contaminated soil, 3) recovery and off-site disposal of free floating petroleum product from a portion of the groundwater, and 4) preparation and submittal of an Alternate Cleanup Level (ACL) Proposal for VOC contaminated groundwater.

2.0 HISTORICAL INFORMATION

Stanley Tools, a division of The Stanley Works, operated a hand tool manufacturing facility in Newark, New Jersey. Figure 2-1 depicts the Stanley property and the Areas of Environmental Concern (AEC) identified during site investigative activities. The facility manufactured products such as hammers, sledges, mauls, bars, and wedges. On March 15, 1985, The Stanley Works publicly announced the closure of the Stanley Tools facility in Newark, New Jersey. This action triggered review under the Environmental Cleanup Responsibility Act (ECRA), now ISRA.

2.1 Chronology of ECRA/ISRA Proceedings for Stanley Tools

Pursuant to the requirements of ECRA, Stanley submitted the General Information Submission (GIS) to the New Jersey Department of Environmental Protection (NJDEP) on March 20, 1985. Four phases of investigation were conducted at the subject site by ENVIRON on behalf of Stanley Tools: Phase I was implemented in October 1986; an interim phase was implemented during the fall of 1988; Phase II was implemented during the winter of 1990; Phase III began in November of 1991 and was completed in January of 1992; and Phase IV was implemented during the summer of 1993. Phase V, the remedial phase was initiated by ENSR in September 1993. ENSR's Phase V activities included annual and quarterly groundwater monitoring; installation and operation of a free product recovery system; pre-remedial soil sampling and excavation and post-excavation soil sampling; site regrading and installation of a cold batch asphalt cap; polychlorinated biphenyl (PCB) containing equipment decommissioning; building demolition; and asbestos survey and removal.

Table 2-1 summarizes key events and Stanley/ENSR submittals and NJDEP correspondence related to ECRA/ISRA compliance.

2.2 Historical Site Plans/Interpretive Aerial History

The facility was originally operated by the Atha Tool Company, beginning in 1875. Site operations at that time consisted of hammer manufacturing. In 1913, the property was purchased by Stanley Rule and Lever, for continued hammer manufacturing operations. In 1913, The Stanley Works merged with Stanley Rule and Lever, and site operations expanded to manufacturing hammers, sledges, mauls, and wedges. The Stanley Works operated the facility until 1985, when they publicly announced closure of the facility. The site is currently vacant.

TABLE 2-1

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
March 15, 1985	Stanley announces closure of Newark facility triggering ECRA
March 20, 1985	Stanley submits the General Information Submission to the New Jersey Department of Environmental Protection (NJDEP) pursuant to ECRA
May 24, 1985	Stanley submits Site Evaluation Submission (SES), including Sampling Plan to NJDEP
January 16, 1986	Initial NJDEP site inspection
February 26, 1986	NJDEP issues inspection report and provides comments on Sampling Plan
May 16, 1986	Stanley submits revised Sampling Plan to NJDEP
September 8, 1986	NJDEP conditionally approves revised Sampling Plan
October 1986	ENVIRON begins implementation of Phase I sampling
November 1986	ENVIRON conducts groundwater sampling event
Spring/Fall 1987	ENVIRON conducts interim groundwater investigations at risk
April 20, 1987	Stanley submits the ENVIRON Phase I Sampling Results Report to the NJDEP
December 1988	Stanley removes four underground storage tanks (USTs) at risk
June 8, 1989	NJDEP provides comments to Phase I Sampling Results Report and requires additional sampling
September 11, 1989	Stanley submits the ENVIRON Phase II Sampling Plan to the NJDEP
October 1989	Stanley removes five additional USTs
December 28, 1989	The ENVIRON Phase II Sampling Plan is conditionally approved by the NJDEP
January 1990	ENVIRON begins implementation of Phase II Sampling Plan
June 4, 1990	Stanley submits the ENVIRON Phase II Sampling Results Report, Soils Cleanup Plan and Phase III Groundwater Sampling Plan to the NJDEP

TABLE 2-1 (cont'd)

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
December 12, 1990	Stanley receives draft Groundwater Sampling Plan Approval and Soil Cleanup Plan Disapproval from NJDEP
December 20, 1990	Stanley sends NJDEP proposed agenda items for meeting on Newark site
January 3, 1991	Stanley sends additional information requested by NJDEP on proposed agenda items
January 8, 1991	Stanley, ENVIRON and NJDEP meet to discuss sampling and cleanup strategies for Newark site
February 20, 1991	Stanley receives request for submission of revised Phase III Sampling Plan
March 15, 1991	Stanley submits proposed Phase III Sampling Plan prepared by ENVIRON
May 1991	ENVIRON begins implementation of soil gas survey
October 10, 1991	Stanley receives conditional approval for Phase III Sampling Plan from NJDEP
October 30, 1991	Stanley submits agenda for field meeting with NJDEP on sampling issues, scheduled for November 4, 1991
November 1991	ENVIRON implements the Phase III Sampling Plan
November 4, 1991	NJDEP cancels field meeting; ENVIRON submits letter to NJDEP on tentative commencement of field work
December 1991	ENVIRON conducts groundwater sampling event
January 1992 - November 1993	Free phase product is recovered from MW-15, MW-16, MW-29 & MW-36 on a biweekly basis by ENVIRON and Stanley Tools; ENVIRON conducts groundwater sampling event (January 1992)
April 1992	Stanley submits the Phase III Sampling Results Report, a Revised Soil Cleanup Plan, and a Ground Water Cleanup Plan
October 28, 1992	NJDEP issues Draft Cleanup Plan Approval

TABLE 2-1 (cont'd)

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
May 19, 1993	NJDEP issues conditional Cleanup Plan approval letter and requires a search for two inactive production wells, one of which was found; NJDEP approves a site-specific alternate cleanup level of 16,000 parts per million (ppm) for Zinc (Zn)
May 24, 1993	Stanley receives final conditional approval for the Revised April 1992 Soil Cleanup Plan and Ground Water Cleanup Plan
June 1993	ENVIRON conducts groundwater sampling event
July 6, 1993	Stanley submits ENVIRON Addendum to the April 1992 Revised Soil Cleanup Plan for Stanley Tools
August 20, 1993	ENVIRON conducts additional soil sampling in AEC 12
August 26, 1993	ENVIRON conducts soil sampling in vicinity of waste tank in Building 52 (AEC 46)
August 27, 1993	ENVIRON conducts additional soil sampling in AEC-8, AEC-17/25/39, and AEC 18; ENSR collects sample from AEC 22/35
September 8, 1993	Stanley submits ENVIRON June 1993 Annual Groundwater Sampling Report to NJDEP
September 1993	ENSR initiates negotiation with NJDEP for a revised Cleanup Plan
September/October 1993	ENSR conducts quarterly groundwater sampling event
October 6, 1993	Stanley, ENSR, and NJDEP met on site to discuss proposed approach to soil remediation
October 13, 1993	ENSR submits letter to NJDEP confirming meeting agreements reached on October 6, 1993
October 19, 1993	ENVIRON conducts additional soil sampling in AEC 12 and AEC 18; ENSR conducts additional soil sampling in AEC 1, AEC 12, AEC-14, AEC-16, AEC-17, 25, 39, and AEC 18.

TABLE 2-1 (cont'd)

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
October 1993	Stanley submits ENSR's Remedial Action Workplan (RAW) for soils to NJDEP; ENSR installs 4 recovery wells (RW-1 through RW-4) to expedite petroleum hydrocarbon recovery operations on the western parcel; Final NJDEP inspection of AECs 27/28 and AEC 34; Romoval of PCB containing equipment
November 1993	ENSR initiates weekly free product recovery
December 1993	Stanley submits ENSR September/October 1993 Quarterly Groundwater Sampling Report to NJDEP
January 3, 1994	NJDEP issues comment letter to June 1993 Annual Groundwater Sampling Report dated September 9 , 1993; October 6, 1993 Meeting Agreements Letter dated October 13, 1993; Revised Soil RAW Proposal dated October 19, 1993; and October 26, 1993 telephone conversation agreements regarding Amendment to April 1992 Groundwater Cleanup Plan Approval
January 18, 1994	Stanley and ENSR attend meeting with NJDEP to reach agreements on modifications to both the October 1993 RAW and NJDEP's conditional RAW approval letter dated January 3, 1994.
January 24, 1994	ENSR submits laboratory data packages for soil sampling activities conducted by ENVIRON in August and ENSR in October, 1993
January 26, 1994	Stanley and ENSR attend meeting with NJDEP to reach agreements on modifications to both the October 1993 RAW and NJDEP's conditional RAW approval letter dated January 3, 1994.
January 28, 1994	NJDEP issues comment letter regarding review of Stanley Tools Quarterly Groundwater Sampling Report and Groundwater Monitoring Plan Amendment dated December 1993
February 14, 1994	ENSR submits Addendum to October 1993 Remedial Action Workplan for Soils to NJDEP
March 11-12, 1994	ENSR collects delineation soil samples in AEC 5, AEC-17, AEC-20 and the Dry Well area

TABLE 2-1 (cont'd)

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
March 17, 1994	ENSR submits ENVIRON report entitled, "Results of August 1993 Investigation for Stanley Tools" to the NJDEP
April 1994	ENSR suspends passive free product recovery system and constructs active free product recovery system which begins operation in September 1994; ENSR installs two additional recovery wells (RW-5 and RW-6) for Phase II upgrade of the product recovery system on the western parcel utilizing a pneumatic product skimming system
April 7, 1994	ENSR submits results of Phase II product recovery systems operation to NJDEP in RAW Amendment letter; ENSR also submits results of additional soil delineation sampling in AEC 5, AEC 17/25/39, AEC 20, AEC 32, and the Dry Well
April 29, 1994	NJDEP issues letter regarding review of Stanley Tools RAW Amendment Letter dated April 7, 1994
May 1994	ENSR conducts quarterly groundwater sampling event; ENSR initiated site capping activities, including site clearing, excavation, and soil stockpiling
May 2, 1994	NJDEP issues permit for cold-batch processing of contaminated soils.
May 6, 1994	ENSR collects delineation soil sample from AEC-22/35
May 10, 1994	NJDEP Bureau of Water Allocation issues letter authorizing Stanley to discontinue search for second production well
May 18, 1994	NJDEP issues sampling requirements letter
June 21, 1994	NJDEP issues approval letter to ENSR's February 14, 1994 Addendum to October 1993 Remedial Action Workplan for Soils
June 23, 1994	ENSR collects additional sample from AEC-22/35 area
June 28, 1994	ENSR collects additional samples from AEC 32

TABLE 2-1 (cont'd)

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
June-August 1994	ENSR conducts delineation soil sampling activities in the sump structure, clay pipeline and pipeline conduit area on the eastern parcel; mobilized for and conducted cold batching activities
July 1994	ENSR initiates soil excavation and cold-batch asphalt processing. ENSR suspends soil excavation/cold-batch operation pending resolutions of contractor problems
July 27, 1994	NJDEP issues letter regarding free product recovery system
Mid-August 1994	ENSR conducts quarterly groundwater sampling and initiates free-phase product recovery (via passive skimmers)
August 26, 1994	ENSR submits Remedial Action Workplan Addendum to NJDEP detailing the results of investigative and remedial activities related to the AEC-8 Pipeline Conduit, Sump and Clay Pipeline; re-initiates passive free product recovery as required by NJDEP
September 6, 1994	Stanley Tools' Annual Groundwater Sampling Report submitted
September 20, 1994	Telephone conference call with NJDEP regarding RAW addendum for AEC-8 dated August 26, 1994
October 3-6, 1994	ENSR conducts additional RI/RA work on the "clay pipeline" in and around Area of Environmental Concern (AEC) 8 collecting additional delineation and post-excavation samples
October 24, 1994	NJDEP issues Remedial Action Workplan Addendum conditional approval letter for AEC-8, dated August 26, 1994
October 25, 1994	ENSR submits letter Remedial Action Report and Proposal for Further Remediation to NJDEP for additional RI/RA work completed on the "clay pipeline" in and around AEC 8

TABLE 2-1 (cont'd)

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
November 1994	Stanley tools submits draft Declaration of Environmental Restriction (DER) to NJDEP for review; Stanley submits "cost difference analysis" to NJDEP; ENSR completes excavation and cold-batch asphalt processing
November 3, 1994	NJDEP approves air pollution control permit application approval for the operation of an exhaust ventilation system associated with the operation of the pugmill mixer on site (Application # 1-94-4138) and issues certificate for continued cold-batch processing of contaminated soils.
November 17, 1994	ENSR receives NJDEP response letter to Stanley Tools' RAR and proposal for additional remediation dated October 25, 1994
November 21-23, 1994	ENSR conducts quarterly groundwater sampling and collects additional delineation soil samples in the sump structure/clay pipeline area
December 1994	ENSR provides final asphalt capping on western parcel
December 1, 1994	ENSR proposes ACLs for VOC contamination in groundwater
December 8, 1994	ENSR collects post remediation samples in the sump excavation beneath Building 20A; ENSR proceeded with clay pipeline removal activities in AEC 8; site capping of western parcel was completed
December 22, 1994	NJDEP issues conditional approval for Stanley to discharge purged groundwater onto the ground in AEC-8
January 1995	ENSR completes clay pipeline removal activities in AEC 8; ENSR conducted remedial activities to repair leak in vicinity of "1.5-Inch Pipeline"
January 9, 1995	ENSR submits August 1994 Quarterly Groundwater Sampling Report to NJDEP
January 16, 1994	ENSR submits workplan to the NJDEP for the investigation of the onsite production well

TABLE 2-1 (cont'd)

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
January 24, 1995	NJDEP issues comment letter regarding Stanley Tools Annual Groundwater Sampling Report dated September 6, 1994
January 31, 1995	NJDEP issues comment letter regarding ENSR's Alternate Cleanup Level Proposal dated November 1994 and request information to establish a Classification Exception Area for the Stanley Tools site
February 1995	ENSR conducts quarterly groundwater sampling event
February 3, 1995	ENSR submits Remedial Action Report/Remedial Action Workplan Addendum for work ENSR and Stanley have completed related to VOC soil contamination from the "clay pipeline" located in and around AEC 8 on the eastern parcel
March 2, 1995	ENSR submits letter response to groundwater sampling requirements in NJDEP's January 24, 1995 letter
March 3, 1995	ENSR submits letter request to discharge purged groundwater at the Stanley site
March 22, 1995	NJDEP issues comment letter regarding review of August 1994 Quarterly Groundwater Sampling Report; Bedrock Aquifer Investigation workplan dated January 16, 1995; RAR/RAW Addendum dated February 3, 1995; January 1995 Stanley Tools Progress Report dated February 15, 1995; March 3, 1995 letter request to discharge purged groundwater; ENSR receives NJDEP approval to discharge purged groundwater to the ground surface
April 7, 1955	ENSR collects samples along 1.5-inch pipeline on the Eastern Parcel
April 17, 1995	ENSR resumed placement and compaction of cold-batch on eastern parcel
April 19, 1995	NJDEP issues comment letter to ENSR February 1995 and March 1995 Progress Reports and Revised Schedules
April 26, 1995	ENSR completed site capping of eastern parcel
May 1995	ENSR initiates bedrock aquifer investigations

TABLE 2-1 (cont'd)

Chronology of ECRA/ISRA Proceedings
Stanley Tools - Newark, New Jersey

DATE	DESCRIPTION
May 16, 1995	NJDEP issues letter conditionally approving semi-annual groundwater sampling plan
May 18, 1995	ENSR submits results of 1.5-Inch pipeline investigations
May 23-24, 1995	ENSR conducts first spring semi-annual groundwater sampling event
June 1995	ENSR continues active free product recovery activities; ENSR completed the off-site disposal of VOC and TPHC contaminated soils generated during the remediation of the pipeline conduit, sump structure and clay pipeline in AEC 8

In the May 19, 1993 cleanup plan approval letter, NJDEP requested that Stanley provide legible copies of Sanborn and historic site maps which would illustrate AEC 8 piping locations in an attempt to identify the origin, function and destination of pipes transversing AEC 8. ENVIRON subsequently provided the NJDEP with copies of Sanborn maps for several dates including 1908, 1931, 1950, 1973, and 1988, and a copy of a 1983 Insurance Map and Site Plan in a June 15, 1993 progress report submittal.

Information related to aerial photographs were previously submitted to NJDEP in documents listed on Table 2-1.

3.0 PHYSICAL SETTING

3.1 Locality

The former Stanley Tools site is located at 140 Chapel Street between Lister Avenue and Albert Avenue, in the City of Newark, Essex County, New Jersey. The facility is located on two parcels of land separated by Chapel Street. The western portion is approximately 1.8 acres in size and the eastern portion is approximately 4.4 acres in size. The approximate site location is depicted on the Newark, New Jersey 7.5 Minute Topographic Quadrangle (Figure 3-1). The site longitude is approximated to be 740820; site latitude is approximated to be 404412.

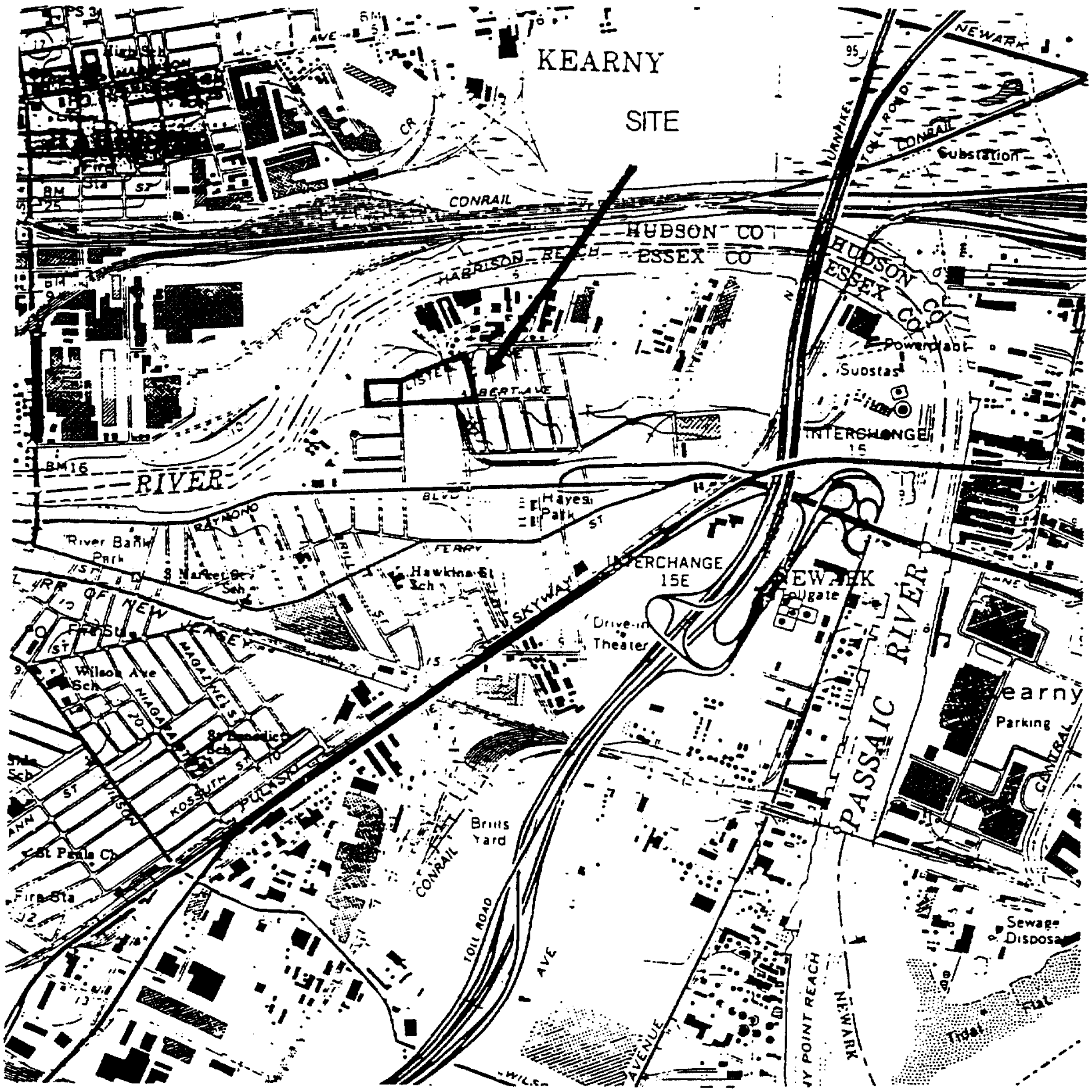
The surrounding area consists mostly of heavy industrial operations and warehousing. A Reichhold Chemical Corporation plant is east of the site. South of the Stanley site are a warehouse facility and a container storage facility. Other commercial businesses and residences are located on Albert Avenue South-Southwest of the site. West and north of the site are a container storage facility and an asphalt manufacturing plant.

3.2 Site Soils

The Newark area lies within the Piedmont Plain physiographic province. The area is characterized by relatively flat lowland, with tidal marshes in undeveloped areas and approximately 10 feet of fill soil and debris at the surface in developed areas. The Passaic River lies immediately to the north of the site and flows generally to the south. Land-surface altitude in the area increases gently to the northwest. Approximately three miles to the northwest are low ridges that trend in a northeasterly direction. The underlying soil at the site is comprised mostly of a silty-clay sand.

3.3 Topography

General site topography is depicted on the United States Geologic Survey (USGS) topographic quadrangle that shows the site location in Figure 3-1. The existing post-remedial site topography is shown on the boundary and topographic map prepared for the site in Section 5.7 (Permanent Remedial Action Structures). In general, the ground surface elevation on the western parcel varies between 7.5 and 12.5 feet and slopes towards the catch basin in the center of the parcel. The ground surface elevation on the eastern parcel varies between 13.5 and 9.5 feet and slopes away from the facility buildings toward the corner of Chapel Street and Albert Avenue on the southwest portion of the site; to the northwest toward Lister Avenue on the northern side of the



SOURCE: USGS 7½ Minute Topographic Quadrangle, Elizabeth and Jersey City, New Jersey

SCALE

0 1/4 1/2 1 MILE

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FIGURE 3-1
SITE LOCATION MAP
Stanley Works - Newark, New Jersey

DRAWN: CL	DATE: June 23, 1995	PROJECT NO.: 6303-056	REV 2
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facility buildings; and to the east-northeast toward Lister Avenue at the rear of the property.

3.4 Local and Regional Geology

The site is located in the Piedmont Physiographic Province of New Jersey. The site is underlain by fill material, which overlies Pleistocene deposits of glacial sands, silts, and gravels. The Pleistocene deposits, in turn, overlie the Triassic Passaic Formation (bedrock). The Passaic Formation is composed mostly of soft red shale to the south near the Elizabeth line; to the north and northeast (near Belleville), it is principally sandstone with interbedded shale.

3.5 Hydrogeology

Two major aquifers exist in the area: 1) unconsolidated deposits, principally stratified glacial deposits; and 2) fractured bedrock (the Passaic Formation). The unconsolidated deposits contain two water-bearing zones directly beneath the site.

The unconsolidated deposits in the vicinity of the Stanley Tools facility extend from ground surface to a depth of approximately 120 feet. The characteristics of the two water-bearing zones within this hydrologic unit may be summarized as follows: a shallow water-bearing zone within the uppermost 20 feet in depth below land surface, consisting of fine-grained clayey sand, and a lower unconsolidated water-bearing zone at depths ranging between 40 and 70 feet below ground surface consisting of fine to medium grained sand.

The depth to groundwater measured at 38 on-site monitoring wells and six recovery wells ranges between 4 to 12 feet below the ground surface. In general, groundwater flows in an easterly direction across the site towards the Passaic River. Based on information obtained from wells screened in the water table aquifer, the general flow direction of the water table aquifer has two components, southeast in the western portion of the site and northeast in the eastern portion of the site, with an average hydraulic gradient of 0.0006. The general flow direction of the lower aquifer is to the southeast with an average hydraulic gradient of 0.002. An evaluation of historical data indicates that groundwater elevation typically fluctuates based upon seasonal precipitation variations and atmospheric pressure systems. Figures 3-2 and 3-3 show the groundwater elevation of the water table aquifer and lower aquifer, respectively.

3.6 Surface Waters and Wetlands

The majority of the subject site is paved and/or covered with structures; no surface waters or wetland areas have been identified on-site. Major surface waters in the vicinity of the site include the tidal Passaic and Hackensack Rivers. As shown in Figure 3-1, the Stanley Tools facility is situated on the inside of a large meander bend along the Passaic River. The river flows in an easterly direction north of the site, then turns in a southerly direction approximately 2,000 feet to the east of the site. The facility lies approximately 400 feet from the river at its closest point. The Hackensack River is approximately one mile east of the site.

Based on a discussion with the City of Newark Engineering Department, the portion of the facility located on the east side of Chapel Street is within the 500-year flood plain and approximately 15 feet above mean sea level. On the west side of Chapel Street the facility is within the 100-year flood plain and approximately 10 feet above mean sea level.

Based on a review of the National Wetlands Inventory Map for the Elizabeth, New Jersey Quadrangle, the closest mapped wetland area is the Passaic River which is designated as an Estuarine Subtidal Open Waterbody (E1OW). See Figure 3-4 for the wetlands map of the site area on a USGS 7.5 minute topographic quadrangle.

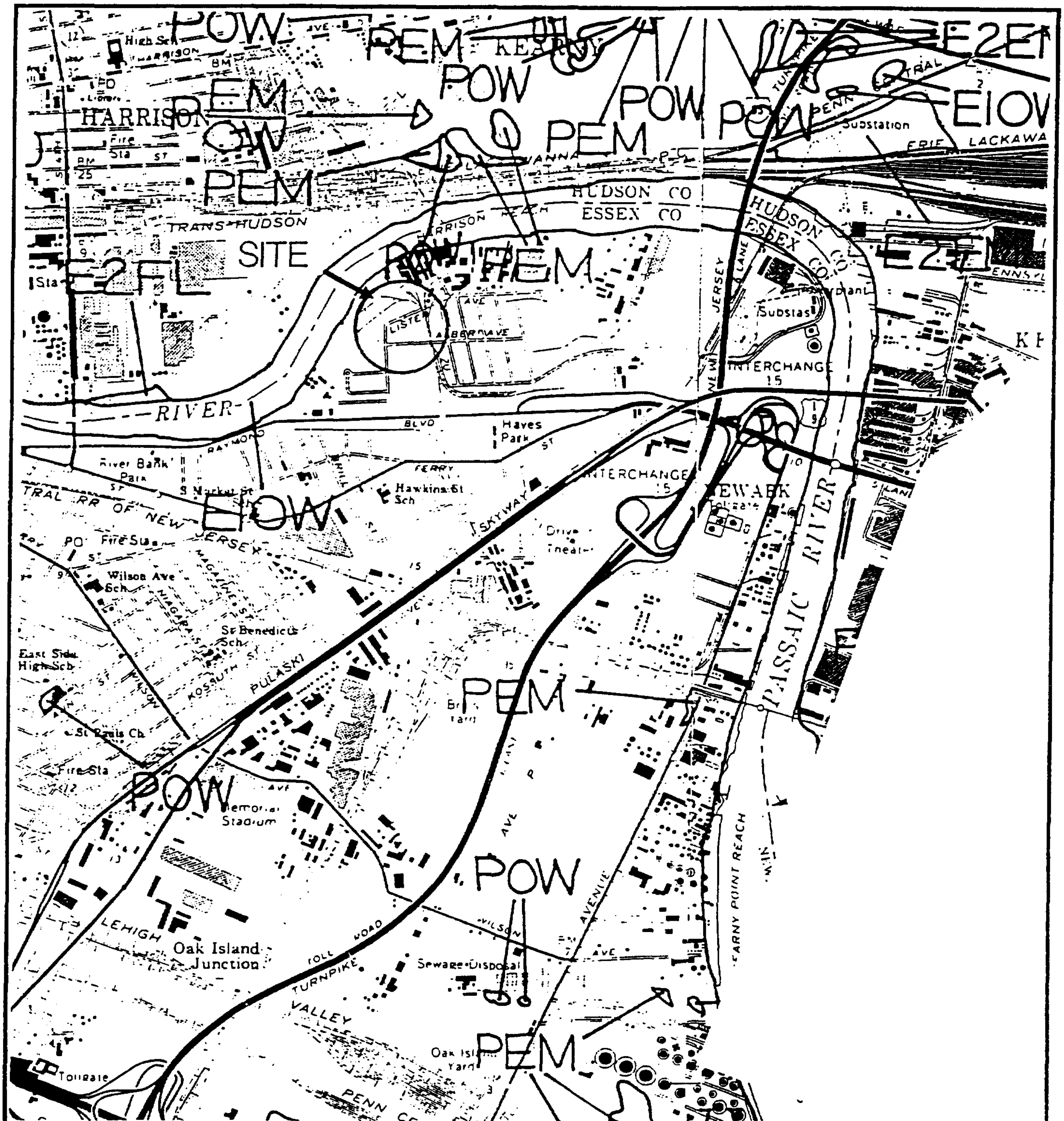
3.7 On-Site Construction Boring Logs

Prior to Stanley Tools, the facility was originally operated by the Atha Tool Company, beginning in 1875. No boring logs relating to site construction are known to exist.

3.8 Land Use

The Stanley Tools facility is located in an area that has experienced primarily heavy industrial usage for many decades. Manufacturing and chemical companies have existed historically in this area (ENVIRON 1990), and are known to have used a variety of organic chemical constituents in their operations. In general, land use surrounding the site is primarily industrial, with some commercial businesses, and residential apartment complexes to the south-southwest of the site.

Land use surrounding the Stanley Tools facility continues to be primarily industrial. Several industrial facilities surrounding the Stanley Tools facility use a variety of organic and inorganic chemical constituents in their manufacturing processes and/or products. Those that used metals in their operations were noted by ENVIRON Corporation (ENVIRON) in their 1992 report. The report states, "Several industrial facilities in the vicinity of Stanley Tools are believed to have used a variety of heavy metals. General Lead Battery, which is located along the western property boundary, may have used lead, cadmium, nickel, and possibly other metals. After operations at General Lead Battery ceased, Barth Smelting was located on this property. This facility reportedly received different types of scrap metal, which were melted down and sold. Pilar River Plate, a company that prepares material for tanning leather and is located on the



SOURCE: National Wetlands Inventory Map Quadrangles
Elizabeth, NJ, 10/29/76
Jersey City, N, 10/29/76

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FIGURE 3-4

NATIONAL WETLANDS INVENTORY MAP

Stanley Tools
Newark, New Jersey

DRAWN: KMW	DATE: June 16, 1995	PROJECT NO.: 6303-056-60R	REV:
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northern property boundary, may have used chromium and other metals in its process."

Examination of the industries currently surrounding the Stanley Tools facility indicates that some of the industries mentioned by ENVIRON no longer exist. However, it was noted during ENSR's site observations that the leather dye and finish company still exists to the northwest, and a Sherwin Williams paint manufacturing plant and an adjacent asphalt plant are currently located to the north-northeast of the site. A Benjamin Moore paint facility also lies to the northeast. Directly to the east, across a railroad spur, lies the Reichhold Chemical Plant. Storage facilities and a leather dye and finish facility lie north-northwest of the site, and a storage facility and other industries lie to the south-southwest. In addition, it was noted that many industries surrounding the Stanley Tools facility, other than the storage facilities, have above-ground storage tanks and 55-gallon drums present.

3.9 Historic/Current Groundwater Use in the Site Vicinity

In the Newark area, groundwater historically was the principal source of water-supply for industry. Groundwater has been used principally for cooling by industries, for air-conditioning, for sanitary and general industrial processing purposes, and by beverage manufacturers as an ingredient in their products. In the 1960s, groundwater use in the Newark area was estimated at approximately 20 million gallons per day. Also during the 1960s, the demand for water used for cooling and as an ingredient in beverages was greater in the summer. After the 1960s, groundwater use decreased as municipal supplies became more available and more reliable.

ENVIRON conducted a well search in 1992 as requested from the NJDEP Bureau of Water Allocation. Additionally, ENSR conducted a well search in 1994 and received the results of a well search from the NJDEP Bureau of Water Allocation (BWA) that identified wells within a 1-mile radius of the site. A summary of all registered and permitted water-withdrawal wells was also received. A map of locations of parcels containing water-supply wells situated within a 1-mile radius of the site and a summary table containing physical data for each well were provided to the NJDEP. In addition to the information provided by the BWA, a telephone survey of the owners of the water-supply wells within a 1-mile radius of the site was conducted by ENSR to assess current groundwater use in the area.

Results indicate that in the past many industrial facilities in the area have used groundwater from wells, but that the use of water from these production wells was primarily industrial in nature (e.g., for industrial cooling, washing, etc.). Currently, the groundwater is not used for potable water supply or for incorporation into products (e.g., beverages). All of the groundwater supply wells that were identified were completed in the Brunswick Formation fractured-bedrock aquifer. The wells were completed by installing solid steel casing through the unconsolidated sediments, and then drilling an open hole into the fractured bedrock, in many cases for several hundred feet. Information regarding registered and permitted wells from the State of New Jersey and results of telephone inquiries indicate that wells at only one site within 1 mile of the site still uses well water. This site, currently owned by Karlshamns USA, Inc. (formerly "The Theobald Industries", as indicated on the well record), has two wells open over an approximately 500-foot interval in the Brunswick Formation bedrock aquifer. Water from these wells is used for industrial purposes in their vacuum system. This site is upgradient (north) of the Stanley Tools facility. In addition, a site owned by Ronson Metals Corporation and located approximately 0.40 mile to the south-southeast of the Stanley Tools facility, has an active water-well registration for three wells completed in the same bedrock aquifer. However, Ronson reports, and the BWA confirms, that: 1) they closed their production facilities in 1990; and 2) they are no longer in business. Nonetheless, because they still have an active well registration, they are legally able to continue to withdraw groundwater at their site. Based on all available data and information, there are no other public or private water-supply wells currently in operation in the vicinity of the site.

On October 19, 1993, ENSR personnel telephoned the BWA and inquired about potential domestic well use in this area. It was stated by BWA personnel that: 1) city water from the municipal distribution system currently is used for drinking in this area; 2) the municipal distribution system also supplies water used for industrial purposes at several sites; and 3) it is unlikely that water from wells in this vicinity is used for drinking, even though the recorded use of some of the industrial production wells is listed as "domestic."

3.10 Impermeable Surface Cover

The majority of the Stanley Tools site is covered by structures and/or pavement. The entire western parcel (approximately 77,373 square feet) of the site is paved. Likewise, the majority of the eastern parcel (approximately 111,534 square feet) is covered by structures and/or paved with the exception of an unpaved area, approximately 410 square feet, at the corner of Chapel Street and Lister Avenue.

4.0 TECHNICAL OVERVIEW

4.1 Summary of Field Activities

Stanley Works closed the Stanley Tools facility and discontinued all industrial operations at 140 Chapel Street in 1985. Since 1985, 40 monitoring wells have been installed on-site to investigate the extent of industrial impacts on subsurface soils and groundwater: 35 shallow monitoring wells approximately 20 feet in depth, and 5 monitoring wells in a lower, unconsolidated water-bearing zone beneath the site, approximately 40 to 70 feet in depth. Numerous groundwater samples have been collected from the monitoring wells for laboratory analysis of volatile organics and select metals; semi-annual groundwater sampling from selected wells is ongoing.

Preliminary assessment, delineation and post-excavation soil samples also have been collected from several locations on-site for laboratory analysis of several parameters, including but not limited to volatile organics (VO), base neutrals (BN), polyaromatic hydrocarbons (PAH), total petroleum hydrocarbons (TPHC) and select metals. ENVIRON implemented four phases of soil sampling at the site from 1986 to 1993. ENSR conducted several soil sampling events in select AECs requiring further delineation from October, 1993 to the last sampling event conducted on April 7, 1995. The majority of ENSR's soil sampling activities focused on the pipeline conduit, clay pipeline and sump structure in AEC 8. The primary contaminants of concern in this area included TPHC and three volatile organic compounds (VOCs): tetrachloroethene (PCE); trichloroethene (TCE), and cis-1,2-dichloroethene (cis-1,2-DCE).

Remediation of soils containing metals and organic chemical constituents was conducted at the site under the direction of ENSR personnel. The remediation consisted of excavation and off-site disposal of 18 cubic yards of soils containing TPHC; excavation and off-site disposal of approximately 230 cubic yards of lead and VOC-contaminated soils; recycling of over 2,500 cubic yards of soils contaminated with metals, PAHs, and TPHC using cold batch asphalt processing; and placement of a 2" asphalt final top course over the entire site. In addition, 6 recovery wells have been installed to recover floating free-phase hydrocarbons. The locations of site monitoring wells and recovery wells are shown on the Stanley Tools site plan (Figure 4-1). At the completion of site remedial activities, Stanley Works plans to file a Declaration of Environmental Restriction (DER) on the properties and limit future site development to non-residential uses.

4.1.1 Seasonal Considerations

Groundwater Remediation

Free product recovery operations are affected by seasonal conditions. In the absence of groundwater pumping, product accumulation thickness in the recovery wells is primarily governed by natural water table fluctuations (attributed to the seasons or atmospheric pressure systems) and not necessarily related to the remedial activity. The free product recovery rate increases during the summer months when the groundwater table is lower, making free product in the smear zone more available for recovery.

Soil Remediation

The placement and compaction of the cold batch material was temporarily delayed due to cold weather conditions during the winter of 1993/94. Replacement of a 12 - inch sewer pipeline in AEC 8 as discussed below in Section 5.6, was also delayed until the spring of 1995 due to the onset of winter. The frozen ground surface encountered during the 1995 winter season prohibited placement and compaction of the cold batch to meet the required engineering specifications.

The cold weather severely limited the placement and compaction of the cold batch processed material onto the ground. The cold batch could not be placed and compacted onto the frozen ground surface to meet the specified compaction guidelines used for this project: New Jersey Department of Transportation (NJDOT) Standard Specifications for Road and Bridge Construction, 1989; Section 302.09 Compaction, Shaping, and Finishing. Under NJDOT section 303.09. the cold batch material shall be compacted to 95% of the referenced maximum density. The frozen ground surface conditions only allowed for 85% compaction of the referenced maximum cold batch density. As a result, the placement and compaction of the cold batch was temporarily delayed. Additionally, the cold weather conditions limited the application of the 2-inch I-5 asphalt topcoat. With the ground surface or sub-base being 20 degrees Fahrenheit or below, no paving was permitted under Section 404.12, (Weather Conditions), in the NJDOT Standard Specifications for Road and Bridge Construction, 1989.

When the ambient temperature was 40 degrees Fahrenheit and rising, the placement and compaction of the cold batch material resumed along with the addition of the 2-inch I-5 asphalt topcoat in the spring of 1995. Under these ambient weather conditions the engineering specifications for the cold batch and asphalt topcoat could be met. The placement of the final asphalt topcoat in the western parcel was completed on December 8, 1994. The placement and compaction of the cold batch in the eastern parcel resumed on April 17, 1995 under weather

conditions suitable for proper engineering applications. Final capping of the eastern parcel was completed on April 26, 1995.

4.1.2 Soil Investigations

In general, soil contamination at the Stanley site mainly consists of heavy metals, particularly lead as well as arsenic and zinc, and total petroleum hydrocarbons (TPHCs). Phase III investigations determined that site surface soils at various AECs are also contaminated with polycyclic aromatic hydrocarbons (PAH) compounds. Additionally, a small concentrated area of soil on the east parcel was found to contain elevated concentrations of volatiles, particularly tetrachloroethene, trichloroethene, and cis-1,2 dichloroethene. The VOC contaminated soils were addressed by excavation and off-site disposal. The remaining contaminated soils were addressed by partial excavation, formulation of a cold batch asphalt mix using contaminated soils, and placement of an impervious cap using cold batch asphalt processing and a hot mix top coat. A summary of key analytical results of soil sampling locations and results are included in Appendices A and B. Appendix A includes tables depicting a summary of ENVIRON soil sampling locations, depths, parameters and analytical results. Appendix B includes summary tables of ENSR soil sample locations, depths, parameters and analytical results.

ENSR submitted a Petition for Variance from the Technical Requirements for remediation delineation and post-remediation sampling for the Stanley Tools site on February 14, 1994, which was approved on June 21, 1994. On behalf of Stanley Tools, ENSR proposed to use existing soil data, historical groundwater data, and data from samples subsequently proposed to the NJDEP to fully characterize the subject site. The site specific conditions and technical basis for the variance are the following:

- Historic fill material has been documented at the Stanley site as well as the surrounding area, including two ISRA sites within one mile of the Stanley property. Fill material covers nearly the entire Stanley site, varying in depth from about 2 to 10 feet. Based upon available information, this historic fill material is believed to contain contaminants including, but not limited to, priority pollutant metals, PAHs, and polychlorinated biphenyls (PCBs). The nature of fill material is such that sporadic areas of contamination and hot spots make delineation of areas specifically impacted by site operations difficult, if not impossible.

- The entire site was being remediated by capping. Since Stanley Tools remediated the entire site, the further delineation of individual AECs was not necessary.

- The entire area surrounding the site has been subject to heavy industrial use for at least 75 years and regional contamination from other sources is likely.

- An extensive amount of delineation data has been collected at this site, beginning over 8 years prior to the effective date of the Technical Requirements for Site Remediation. Approximately four hundred soil samples and 40 monitoring wells have been installed at this 6 acre site. In addition, because the site was remediated by capping and has been adequately delineated, post-remediation soil sampling was not necessary in many cases.

As agreed with the NJDEP in meetings on January 18 and 26, 1994, this variance from the Technical Requirements for Site Remediation was appropriate for the remedial action workplan at the Stanley Tools site due to the expected difficulties in delineation sampling due to the presence of historic fill material, the capping of the entire site, the extensive amount of analytical data collected prior to the adoption of the Technical Requirements, and regional contamination issues.

Installation of an asphalt cap at the site reduced the potential direct contact exposure pathway to soil contamination and minimized the impact of soil contaminants to the groundwater. Contaminated soils in most of the AECs were incorporated into the cold batch asphalt recycling used to create a 6- to 9-inch sub-base for a final 2-inch cap over the site. The use of cold batch recycling has been demonstrated to be an effective stabilization removal technique for TPHCs, base neutrals, metals, PCBs, and volatile organic compounds. It was agreed that it would not be necessary to increase the amounts of soil to be actively remediated unless, on an AEC by AEC basis, the contaminants in soil have impacted groundwater in the immediate area of the AEC and/or if a "source area" existed that could potentially have a significant future impact on groundwater. Much of the metals, PCB and base neutral contaminants identified during sampling, has been excavated and incorporated into the cold batch material and placed over the site as an asphalt sub-base material. Therefore, the analytical data presented on the figures in Appendix C represent pre-remedial subsurface conditions.

Forty-seven AECs have been identified at the Stanley Tools site based on site reconnaissance, a review of past operations, and an examination of existing sampling data. In addition, several other areas of environmental concern were identified during the course of remedial investigations/actions. A summary of remedial investigations completed in these areas are described in Section 5.1. Appendix A contains summary tables of soil sample names, location, depths, parameters, and analytical results for all Phase I, II, III and IV soil samples collected previously by ENVIRON from October 1986 through August 1993. Soil sample names, location, depths, parameters and analytical results for all Phase V and VI soil samples collected by ENSR

from October 1993 through April 1995 are presented in the summary tables in Appendix B. A summary of soil sample results of ENVIRON and ENSR sampling events are depicted on the figures in Appendix C. All ENSR analytical results presented in these tables and figures were compared to the NJDEP Impact to Groundwater Soil Cleanup Criteria. According to the NJDEP, the Impact to Groundwater Soil Cleanup Criteria are appropriately applied to the subject site since Stanley Tools has completed remedial capping of the entire site and has agreed to accept a DER negating the need for comparison to Non-residential and Residential Direct Contact Soil Cleanup Criteria[1].

4.1.3 Groundwater Investigations

Thirty-eight monitoring wells and six free-phase product recovery wells currently exist at the site. Monitoring well and recovery well locations are shown on Figure 4-1. A total of ten rounds of groundwater sampling have been conducted to date. Not every well was sampled in every round. Previous groundwater sampling events at the site include the following:

ENVIRON Investigations

- November 1986
- December 1991
- January 1992
- June 1993

ENSR Investigations

- September 1993
- May 1994
- August 1994
- November 1994
- February 1995
- May 1995

The results of previous groundwater investigations indicated that VOC contamination is the primary concern in several shallow wells on the eastern parcel of the Stanley site. The groundwater contaminants in this area include tetrachloroethylene, trichloroethylene, and 1,2 trans-dichloroethylene. The shallow wells on the western parcel of the site primarily contain TPHCs, the source of which is believed to have been the former underground storage tanks in

[1] Stanley does not necessarily agree with NJDEP's position in this regard.

AECs 24 and 25 near these well locations. In addition, floating fuel-oil product, the source of which is believed to have been the former USTs at AECs 23, 24, and 25, was detected in several monitoring wells on the western parcel of the site. Contaminated groundwater is being addressed in part through a free-product recovery system for oil floating on the groundwater (see Section 4.2).

Data collected during the most recent groundwater sampling event and historical sampling events have been used to evaluate concentration variations of specific compounds over time. Analytical results received for all sampling events have been summarized in Table 4-1.

Throughout the course of the groundwater monitoring program, only vinyl chloride and tetrachlorethene have historically exceeded the ACLs proposed by ENSR/Stanley December 1, 1994. For the November 1994 groundwater sampling round, trichloroethene concentrations above the ACLs were found in three wells. The elevated VOC concentrations in these wells, as well as those found in monitoring wells located in the vicinity of AEC 8, are believed to be a transient phenomena associated with the soil disturbance and potential flushing that resulted from source control (contaminated soil removal) measures related to the clay pipe in the eastern portion of the site.

As indicated in the December 1, 1994 submittal, ENSR/Stanley propose to address vinyl chloride and tetrachloroethene contamination in the groundwater by a combination of source removal and monitoring. Source removal measures related to VOC contaminated soil in the eastern portion of the site was completed by excavation and off-site disposal of approximately 230 cubic yards of VOC contaminated soils. ENSR/Stanley proposed to monitor for VC and PCE semi-annually (twice per year at six month intervals) for a period of three years to measure the progress of natural attenuation at the site. The annual fall groundwater sampling event will also include the sampling and analysis of TCE and cis- and trans-1,2-DCE, as requested by the NJDEP in their May 16, 1995 letter approval of the semi-annual sampling program.

Monitoring wells MW-2, MW-9, MW-10, MW-18, MW-19, MW-20, MW-21, MW-24, MW-37, MW-39 and MW-40 will be included in the semi-annual sampling program. Free product wells MW-15, MW-16, MW-29 and MW-36 will not be sampled, but free product will be measured. In addition, water levels will also be measured semi-annually from MW-1, MW-4 through 8, MW-13, MW-22, MW-30, MW-31, MW-32 and MW-33 which will not be sampled.

At the end of the three-year time period following the November 1997 round, ENSR/Stanley will further evaluate the data and propose an appropriate course of action. A three year time period is proposed as a sufficient time period to evaluate the effectiveness of source removal at reducing the area of contamination. If both vinyl chloride and tetrachloroethene are maintained

Table 4-1
Summary of Historical Groundwater Sample Collection Data for Key Compounds (ug/l)
November 1986 through May 1995
Stanley Tools – Newark, New Jersey

COMPOUNDS	MW-01									MW-02								
	11/3/86	12/16/91	1/20/92	6/25/93	9/28/93	5/18/94	8/23/94	11/21/94	2/22/95	11/3/86	12/16/91	1/20/92	6/25/93	9/28/93	5/18/94	8/23/94	11/21/94	5/23/95
ARSENIC (TOTAL)				*ND*	*ND*								*ND*	*ND*				*ND*
ARSENIC (DISSOLVED)					ND									ND				ND
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	***1.7***	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	***1.3***	***1.2***	***1.1***	***1.3***	***1.4***	ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)	15			350	ND					23			230	41	64.3	ND		33.5
ZINC (DISSOLVED)					ND									13 J	45	ND		29.1

COMPOUNDS	MW-03									MW-04								
	11/3/86	12/16/91	1/21/92	6/25/93	9/28/93	5/19/94	8/25/94	11/22/94	2/23/95	11/3/86	12/16/91	1/21/92	6/25/93	9/28/93	5/19/94	8/25/94	11/22/94	2/23/95
ARSENIC (TOTAL)				ND	ND								2.4 J	ND				
ARSENIC (DISSOLVED)					ND									ND				
CHLOROBENZENE	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	***4J***	ND	ND	ND	ND	0.8J	ND	ND	***1.7***	***65***	***33.4***	***31.5***	***13.8***	***47***	***32***	***30***	ND	***17***
TRICHLOROETHENE	ND	***2.4J***	ND	ND	***1.2***	ND	ND	ND	0.44	***4***	***3.46***	***3.56***	ND	***4***	***3.4***	***2.8***	***2.3***	***2.3***
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)	18			260	40	26				34			200	ND	16.8			
ZINC (DISSOLVED)					17J	23.6								14.	ND			

COMPOUNDS	MW-05									MW-06								
	11/3/86	12/16/91	1/21/92	6/22/93	9/28/93	5/17/94	8/26/94	11/23/94	2/24/95	11/3/86	12/16/91	1/21/92	6/22/93	9/28/93	5/17/94	8/26/94	11/23/94	2/24/95
ARSENIC (TOTAL)				ND	ND					5			5	***21***	***10.1***	ND	***24***	5.8
ARSENIC (DISSOLVED)					ND									18	8.6	ND	13	7.5
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
TETRACHLOROETHENE	ND	ND	ND	***2.71 J***	***3.3***	***2.1***	***1.2***	ND	***3***	ND	ND	ND	ND	ND	ND			
TRICHLOROETHENE	ND	ND	ND	***8.33***	***9.9***	***4.4***	***2.2***	ND	***8.1***	ND	ND	ND	ND	ND	ND			
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
ZINC (TOTAL)	696			1800	760	454	530	280		4390			***8770***	***7800***	***6680***	***7600***	***7700***	3900
ZINC (DISSOLVED)					690	250	410	170						7400	5300	7100	5400	3400

COMPOUNDS	MW-07									MW-08								
	11/3/86	12/16/91	1/21/92	6/22/93	9/28/93	5/17/94	8/26/94	11/23/94	2/24/95	11/3/86	12/16/91	1/21/92	6/23/93	9/28/93	5/18/94	8/24/94	11/22/94	2/23/95
ARSENIC (TOTAL)		ND		6.3 J	ND								ND	ND				
ARSENIC (DISSOLVED)					ND									ND				
CHLOROBENZENE	ND	ND	ND	ND	ND	ND				ND	22.5	28.9	34.3	2.2	ND	33	ND	0.23
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND				ND	ND	ND	ND	***1.4***	***1.1***	***1.2***	ND	0.83
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	***1.1***	0.87	ND	0.73
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)	1620	***15000***		1900	690	1490	2300	***27000***	1800	43			810	ND	36.8	33	59	ND
ZINC (DISSOLVED)					460	741	520	190	410					ND	15.9	ND	ND	ND

ND – Not Detected
J – Compound was detected at levels below practical quantitation limit.
The level reported is approximate.
Bold/Italic data indicates concentrations above NJGWQS, underlined data indicates concentrations above ACLs

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Table 4-1
Summary of Historical Groundwater Sample Collection Data for Key Compounds (ug/l)
November 1986 through May 1995
Stanley Tools – Newark, New Jersey

(Continued)

COMPOUNDS	MW-09										MW-10									
	11/3/86	12/16/91	1/21/92	6/23/93	9/28/93	5/18/94	8/24/94	11/22/94	2/23/95	5/24/95	11/3/86	12/16/91	1/21/92	6/24/93	9/28/93	5/18/94	8/24/94	11/22/94	2/22/95	5/23/95
ARSENIC (TOTAL)				3 J	4.4J	3	ND	ND	ND	ND		***13***		2 J	5.2J	ND	ND	ND	ND	ND
ARSENIC (DISSOLVED)					ND	3.8	ND	ND	ND	ND					ND	ND	ND	ND	ND	ND
CHLOROBENZENE	ND	ND	***172***	***54.7***	***62***	***72***	8.1	***230***	***130***	***7.8***	***120***	***74***	***117***	***112***	***150***	***150***	***190***	***190***	***150***	***111***
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND	***1.4***	ND	ND	ND	ND	ND	ND	ND	ND	***4.1***	ND	***8.1***	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND	0.76	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	***69***	***340***	***183***	***27.9***	***46***	***200***	***19***	***62***	ND	ND
ZINC (TOTAL)	12			260	ND	173					48	700		140	ND	18.2				
ZINC (DISSOLVED)					ND	30.2									ND	ND				

COMPOUNDS	MW-11									MW-12							
	11/3/86	12/16/91	1/20/92	6/23/93	9/28/93	5/18/94	8/24/94	11/22/94	2/23/95	12/16/91	1/21/92	6/24/93	9/28/93	5/20/94	8/24/94	11/22/94	2/23/95
ARSENIC (TOTAL)				ND	ND							6.6 J	4.9 J	ND	ND	ND	ND
ARSENIC (DISSOLVED)					ND								ND	ND	ND	ND	ND
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND			
TETRACHLOROETHENE	***22***	***7J***	***6.21***	***3.37 J***	***10***	***4.1***	***5.5***	***13***	***6.3***	ND	ND	ND	ND	ND			
TRICHLOROETHENE	***6***	ND	ND	ND	0.58J	ND	0.5	ND	***1.5***	ND	ND	ND	ND	ND			
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	***54***	1.7	ND	ND	ND	ND	ND			
ZINC (TOTAL)	21			710	ND	26	28	120	36			360	ND				
ZINC (DISSOLVED)					ND	ND	ND	ND	ND				ND				

COMPOUNDS	MW-13								MW-14						
	12/16/91	1/21/92	6/23/93	9/28/93	5/17/94	8/25/94	11/22/94	2/24/95	12/16/91	1/22/92	6/22/93	9/28/93	5/17/94	8/26/94	11/23/94
ARSENIC (TOTAL)			5.8 J	7.5 J	ND	7.2	***14***	***8.6***	8J		ND	ND			
ARSENIC (DISSOLVED)				6J	4.4	8.2	ND	ND				ND			
CHLOROBENZENE	ND	ND	ND	ND	ND				ND	ND	1.42 J	2.1	ND	2.7	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)			710	250	176	670	700	150	2400		1100	230	248	400	630
ZINC (DISSOLVED)				54	52.4	120	59	62				72	26	27	140

COMPOUND	MW-17					MW-18								
	12/17/91	1/21/92	6/25/93	9/28/93	5/19/94	12/16/91	1/21/92	6/24/93	9/28/93	5/19/94	8/23/94	11/21/94	2/21/95	5/23/95
ARSENIC (TOTAL)	6.2J		2.1 J	ND		7.1J		3.5 J	ND					
ARSENIC (DISSOLVED)				ND					ND					
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND	***97***	***83.8***	***23.4***	***39***	***16***	***20***	***23***	***12***	***12***
TRICHLOROETHENE	ND	ND	ND	ND	ND	***11***	***14.4***	***4.87***	***5.8***	***3.8***	***5.5***	***1.4***	***5***	***3***
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	0.87J	ND	ND	ND	ND	ND
ZINC (TOTAL)	400		310	33		2000		340	120	214				
ZINC (DISSOLVED)				ND					44	27.2				

ND – Not Detected
J – Compound was detected at levels below practical quantitation limit.
The level reported is approximate.
Bold/Italic data indicates concentrations above NJGWQS, underlined data indicates concentrations above ACLs

Table 4-1
Summary of Historical Groundwater Sample Collection Data for Key Compounds (ug/l)
November 1986 through May 1995
Stanley Tools – Newark, New Jersey

(Continued)

COMPOUND	MW-19									MW-20								
	12/16/91	1/21/92	6/24/93	9/28/93	5/18/94	8/23/94	11/21/94	2/21/95	5/23/95	12/16/91	1/21/92	6/23/93	9/28/93	5/19/94	8/24/94	11/22/94	2/23/95	5/24/95
ARSENIC (TOTAL)	***9.3J***		3.2 J	ND						4.4J		4.7 J	ND					
ARSENIC (DISSOLVED)				ND									ND					
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.6
TETRACHLOROETHENE	***660***	***17.3***	***38***	***10***	***3.4***	***6.7***	***230***	***49***	***4.5***	***6.8J***	***15.4***	***9.25***	***20***	***5.5***	***7.6***	ND	***13***	***5.3***
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	***6.47***	***4.36***	***4.8***	***3.1***	***1.6***	ND	***8.9***	***3.1***
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.5	ND	ND	ND	***9.8***	***3.5***
ZINC (TOTAL)	1100		610	430	420	420	2100	360	450	320		270	49					
ZINC (DISSOLVED)				380	418	440	330	350	415				ND					

COMPOUND	MW-21									MW-22			
	12/16/91	1/21/92	6/25/93	9/28/93	5/19/94	8/24/94	11/22/94	2/23/95	5/24/95	12/16/91	6/23/93	9/28/93	5/18/94
ARSENIC (TOTAL)	***9.1J***		7.6 J	6J	***22.5***					ND	ND	ND	
ARSENIC (DISSOLVED)				7.6J	3.6							ND	
CHLOROBENZENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND
ZINC (TOTAL)	3500		1100	110	***6450***	190	***11000***	460	123	150	140	17 J	
ZINC (DISSOLVED)				69	53.9	20	70	ND	ND			ND	

COMPOUND	MW-23								MW-24								
	12/17/91	1/21/92	6/23/93	9/28/93	5/17/94	8/25/94	11/22/94	2/24/95	12/16/91	1/21/92	6/24/93	9/28/93	5/16/94	8/23/94	11/21/94	2/22/95	5/23/95
ARSENIC (TOTAL)			ND	ND					ND		2 J	ND					
ARSENIC (DISSOLVED)				ND								ND					
CHLOROBENZENE	ND	ND	ND	ND	ND				ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND				***240***	***1730***	***414***	***1400***	***890***	***1500***	***4500***	***9600***	***1330***
TRICHLOROETHENE	ND	ND	ND	ND	ND				***51***	***581***	***79.3***	***250***	***250***	***330***	***1700***	***1000***	***161***
VINYL CHLORIDE	ND	ND	ND	ND	ND				***16***	***63.3 J***	ND	***140***	***920***	***380***	ND	ND	ND
ZINC (TOTAL)			1100	97	205	270	250	200	230		310	140	178				
ZINC (DISSOLVED)				ND	29.2	76	22	21				140	79.5				

COMPOUND	MW-25								MW-26				
	12/18/91	1/21/92	6/22/93	9/28/93	5/17/94	8/26/94	11/23/94	2/24/95	12/18/91	1/21/92	6/23/93	9/28/93	5/17/94
ARSENIC (TOTAL)	6J		3.5 J	6.6J	***9.7***						4 J	7.4J	ND
ARSENIC (DISSOLVED)				4.1J	7.1							ND	ND
CHLOROBENZENE	ND	ND	ND	3.4	ND	ND	ND	0.81	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)	1100		920	240	423	390	***8100***	***59000***			480	400	30.2
ZINC (DISSOLVED)				32	183	67	150	670				ND	ND

ND – Not Detected
J – Compound was detected at levels below practical quantitation limit.
The level reported is approximate.
Bold/Italic data indicates concentrations above NJGWQS, underlined data indicates concentrations above ACLs

Table 4-1
Summary of Historical Groundwater Sample Collection Data for Key Compounds (ug/l)
November 1986 through May 1995
Stanley Tools – Newark, New Jersey

(Continued)

COMPOUND	MW-30				MW-31				MW-32				
	5/21/94	8/25/94	11/23/94	2/24/95	5/21/94	8/25/94	11/23/94	2/24/95	12/16/91	1/21/92	6/24/93	9/28/93	5/10/94
ARSENIC (TOTAL)	ND	***6.8***	ND	ND	***76.9***	ND	***8.5***	ND			ND	ND	
ARSENIC (DISSOLVED)	ND	8.2	ND	ND	ND	ND	ND	ND				ND	
CHLOROBENZENE	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND		ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)	283	2100	1100	89	3290	35	230	31			470	48	
ZINC (DISSOLVED)	116	900	63	81	23	ND	49	ND				ND	

COMPOUND	MW-33				MW-34				
	12/16/91	1/21/92	6/24/93	5/20/94	12/16/91	1/21/92	6/24/93	9/28/93	5/20/94
ARSENIC (TOTAL)			3 J				ND	ND	
ARSENIC (DISSOLVED)									
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	ND	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)			170				ND	ND	
ZINC (DISSOLVED)									

COMPOUND	MW-35					MW-36		MW-37						MW-38
	12/16/91	1/21/92	6/22/93	9/28/93	5/17/94	12/16/91	1/21/92	9/13/93	5/16/94	8/23/94	11/21/94	2/21/95	5/23/95	9/13/93
ARSENIC (TOTAL)			ND	ND				ND	***17.1***	***44***	***8.2***	***9.3***	ND	ND
ARSENIC (DISSOLVED)				ND					ND	ND	ND	ND	ND	
CHLOROBENZENE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	***369***	***690***	***1700***	***4500***	***960***	***2150***	ND
TRICHLOROETHENE	ND	ND	ND	ND	ND	ND	ND	***58.2***	***130***	***310***	***1000***	***130***	***284***	ND
VINYL CHLORIDE	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ZINC (TOTAL)			690	81				940	2410	2700	980	990	855	32
ZINC (DISSOLVED)				ND					1470	970	320	650	811	

COMPOUND	MW-39						MW-40					
	9/13/93	5/16/94	8/23/94	11/21/94	2/22/95	5/24/95	9/13/93	5/16/94	8/23/94	11/21/94	2/22/95	5/23/95
ARSENIC (TOTAL)	ND	ND	ND	ND	ND	ND	ND	***9.7***	ND	ND	***41***	ND
ARSENIC (DISSOLVED)		ND	ND	ND	ND	ND		ND	ND	ND	ND	ND
CHLOROBENZENE	ND	ND	ND	ND	0.32	0.81	ND	ND	ND	ND	ND	ND
TETRACHLOROETHENE	***12.5***	***690***	***4.7***	***3.9***	***10***	***4.2***	***183***	***1200***	***4000***	***2500***	***3300***	***16200***
TRICHLOROETHENE	ND	***130***	ND	ND	***2.6***	0.96	***268***	***300***	***710***	***130***	***280***	***2820***
VINYL CHLORIDE	ND	ND	ND	ND	3.6	ND	ND	***510***	ND	ND	ND	***163***
ZINC (TOTAL)	17 J	14.5	36	ND	140	ND	99	1978	660	630	***6100***	222
ZINC (DISSOLVED)		ND	ND	ND	73	ND		128	150	67	64	ND

ND – Not Detected
J – Compound was detected at levels below practical quantitation limit.
The level reported is approximate.
Bold/Italic data indicates concentrations above NJGWQS, underlined data indicates concentrations above ACLs

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the system is currently in operation. The upgraded system, consists of six passive skimmers and four active pneumatic skimming pumps to continuously recover free-phase product from the western parcel. In addition, passive free product recovery efforts have continued at monitoring well MW-36 (to the east). The product recovered from the skimming equipment is pumped to and temporarily stored in a 550-gallon above-ground holding tank to await disposal at an approved facility. To ensure effective operation of the product recovery equipment, the site is monitored on a weekly basis. The free-phase product and groundwater elevation in each monitoring well are measured and recorded during each visit. Additionally, the product recovered from wells utilizing the passive skimmers is measured and recorded during each weekly site visit. A cumulative graph for the entire product recovery program (passive and active) is presented in Figure 4-2. See Figure 4-3 for a free product isopach drawing showing the apparent free product thickness and estimated areal extent of free-phase product based on data collected on November 18, 1994.

4.3 Summary of Pre-Design Studies

As suggested by but not required by NJDEP, a pilot study was conducted by an independent cold batch asphalt contractor to confirm the formulation requirements for cold batch asphalt recycling of soils contaminated with petroleum hydrocarbons and heavy metals at the Stanley Tools site. The results of the pilot study indicated that the cold batch asphalting of the onsite contaminated soil does produce a sound asphalt pavement and is an effective method for stabilizing contaminants. The pilot study indicated significant reduction in leachability based on the comparison of TCLP results of soil untreated and treated. The results of this pilot study are detailed in ENSR's May 19, 1994 correspondence to the NJDEP.

The cold batch material produced by the initial cold batch contractor failed to meet the quality assurance performance specifications for the processed material. This lead to the reprocessing of the material by a second independent cold batch contractor. The reprocessed materials met the performance specifications.

Prior to reprocessing the cold batch material, the second contractor performed an additional pilot study on the failed cold batch material. The pilot study conducted by the second contractor concluded that their cold batch processing techniques would significantly reduce the leachable lead levels in the failed cold batch material and provide a material also meeting the structural performance specifications.

4.4 Permit Limitations - Cold Batch Processing

The on-site production of cold batch involved the use of a pugmill mixer to blend the onsite soils

with liquid asphalt, portland cement, and water. The pugmill mixers were required by NJDEP permit limitations to operate under negative atmospheric pressure. The pugmill mixers were stationed in Building 51 on the eastern parcel of the Stanley Tools property. All openings to the outside atmosphere in Building 51 were closed-off with plastic sheeting to produce a negative atmosphere in the building. A Permit to Construct, Install or Alter, Control Apparatus or Equipment and Certificates to Operate Control Apparatus or Equipment (Log No. 1-93-4343) was issued by NJDEP on May 2, 1994 (for initial processing) and (Certificate Number 119930; Log No. 1-94-4138) was issued by the NJDEP on November 3, 1994 for the operation of the exhaust vent system of the pugmill mixer. Permit limitations for the operation of the exhaust ventilation system of the pugmill mixers were stipulated in the Conditions for a Permit to Construct and a Certificate to Operate (Log Number 1-93-4343) (initial processing) and Log Number 1-94-4138 (subsequent processing). A copy of the conditions for final processing are included in Appendix E.

ENSR sampled the cold-batched process material after a three to five day curing period to ensure that the processed material passed the TCLP lead criteria pursuant to the contractor's quality assurance performance specification. Sampling was conducted in accordance with NJDEP sampling guidance for obtaining representative samples for waste classification. A total of seven samples (IJ, KL, MN, 0-1, P-1, Q-1, and R-1) were analyzed by both Envirotech Research Inc. and ENVIRO-PROBE, Inc. of Edison, New Jersey for TCLP lead. The results of these analyses were below regulatory levels. Laboratory data sheets are provided in Appendix E. Additional testing for physical characteristics (thickness, stability, flow value, and percent air voids) was conducted by Shimel and Sor Testing Laboratories, Inc. of Cedar Grove, New Jersey. The results of these test results are provided in Appendix E.

4.5 Ecological Studies

Since there are no known ecological impacts from the Stanley site, detailed ecological studies have not been conducted. This determination was confirmed in NJDEP's letter of May 19, 1993, which stated "there are no immediate ecological receptors in the region." Newark is an industrial area, and contains no significant population of wildlife or vegetation, and there is no agriculture in the area. Additionally, since there is no surface water on the site or in the immediate vicinity, there is no risk of exposure to aquatic life. Currently, there are a number of dogs living on or near the site. Groundwater is approximately 10 feet below the ground surface in the area, making exposure to dogs or other domestic animals in the vicinity impossible. Although most surfaces in the area are currently paved or otherwise developed, a small amount of vegetation is present. This vegetation (primarily weeds) does not appear to be affected by the concentrations of groundwater constituents currently present. There is no possibility for adverse effects on physical structures.

below the ACLs in all wells for the final year of monitoring, ENSR/Stanley propose no further action.

As required in the NJDEP RAW approval letter dated May 19, 1993, a search for two inactive production wells on the eastern portion of the site has been conducted. The exact location of one production well is known. ENSR and Stanley conducted an extensive search to locate the suspected second well, but the search was unsuccessful. On May 10, 1994 Stanley received a letter from the NJDEP Bureau of Water Allocation authorizing Stanley to discontinue efforts to locate the second well. As required by NJDEP, ENSR is currently in the process of investigating the bedrock aquifer. The results of this investigation will be submitted to NJDEP under separate cover.

Due to accidental damage incurred during site remediation activities, monitoring well MW-40 was abandoned and sealed by a licensed New Jersey licensed well driller, Advanced Drilling Inc., and a new groundwater monitoring well was installed in its place in April, 1995. A copy of the Monitoring Well Permit, Monitoring Well Record and the Well Abandonment Reports for MW-40 are provided in Appendix D. In a May 16, 1995 response letter, NJDEP approved ENSR's proposal for the abandonment and sealing of the following ten existing monitoring wells by a New Jersey licensed well driller: MW-3, MW-11, MW-12, MW-14, MW-17, MW-23, MW-25, MW-26, MW-34 and MW-35.

4.2 Summary of Free Product Recovery Activities

Beginning in January 1992, free-phase product was recovered from monitoring wells MW-15, MW-16, MW-29, and MW-36 on a biweekly basis by ENVIRON and Stanley Tools personnel. In October 1993, Recovery Wells RW-1 through RW-4 were installed by ENSR to expedite petroleum hydrocarbon product recovery in the western parcel. ENSR began weekly product recovery from these monitoring wells and recovery wells in November 1993 utilizing passive skimmers. In April 1994 passive free product recovery was temporarily suspended, and construction of an active free product recovery system was initiated. Two additional recovery wells (RW-5 and RW-6) were installed to upgrade the product recovery program. Monitoring well boring logs and construction Form As and Bs for the six recovery wells were submitted to the NJDEP in the ENSR September 1994 Annual Groundwater Sampling Report. This upgrade, termed as Phase II, utilized a pneumatic product skimming system. The active recovery system was not immediately placed into operation, due to the continuance of site remediation activities. The passive free product recovery system was re-installed on August 26, 1994, and collection of product continued starting September 7, 1994.

Construction of the active free product recovery system was completed in November 1994 and

5.0 FINDINGS/REMEDIAL ACTION REPORT

5.1 Summary of Remedial Action by Area of Environmental Concern (AEC)

The remedial approach for the site was cold batch recycling for designated AEC's plus a 2-inch thick asphalt cap for the entire site. The remediation completed for each designated AEC is described below. A summary of excavation activities completed for each AEC is provided in Table 5-1. Figure 5-1 shows the extent and depth of excavation for each AEC. The volume of contaminated media that was remediated for each AEC, includes the amounts listed in Table 5-1 and the area of subsurface contamination remediated by the asphalt capping. Thus, the total volume of contaminated media at the site can not be realistically calculated and can only be estimated to include the volume excavated at each AEC plus the volume of contaminated fill beneath the asphalt cap to the groundwater table. All AECs, in which soil contamination remains above the NJDEP soil cleanup criteria, have been included in the DER proposed for the site.

<u>AEC 1 - Area of Discolored Soil in Front of Building 25A and 53</u> East

AEC 1 is a small (835 sq. ft.) area of discolored soil located on the west side of Buildings 25A and 53. Carcinogenic Polycyclic Aromatic Hydrocarbons (CaPAHs) were detected above the NJDEP Direct Contact Soil Cleanup Criteria in this area.

Remediation in this area consisted of excavation, cold batch recycling and capping. An average depth of 0.7 feet of soil was excavated, approximately 21 cubic yards (cu. yd.) of soil was excavated and recycled into cold batch material, compacted, and used as a base for the placement of the 2-inch thick asphalt cap. Remedial actions were completed for this area.

<u>AEC 2 - Area of Discolored Soil Adjacent to the North Wall of Building 50 and Parking Lot</u>
East

AEC 2 is a narrow rectangular area north of Building 50 which borders the site property boundary fenceline along Lister Avenue. Lead was detected above NJDEP Direct Contact Soil Cleanup Criteria in this area.

Remediation in this area consisted of excavation, cold batch recycling and capping. There are two distinct portions of AEC 2. An average depth of 0.50 feet of soil was excavated from an 479 sq. ft. area between the fence and Building 50. An average depth of 0.8 feet of soil was excavated from an 586 sq. ft. area between the macadam parking lot and the fence. A total of 42 cu. yd. of soil was excavated from AEC 2. Remedial action was completed in this area.

TABLE 5-1 (Cont'd)

Areas of Environmental Concern (AEC's) Excavated
Stanley Tools - Newark, New Jersey

AEC	Approximate AEC Area (sq.ft.)	Approximate Average Depth of Excavation (ft.)	Approximate Volume of Excavation (cu. yds.)
32	925	8.0	12
33	1.0	0.75	8
Former Environ Test Pit 2402	25	2.7	2.0
Former Environ Test Pit TP05	50	1.0	60
Pipeline Conduit	315	0.5	8.3
Sump Structure	640	12	200
Clay Pipeline	420	7.5	169
Underneath Building 20A	192	1.0	2
Sample Location SP-37	100	7	8
1.5-Inch Diameter Pipeline	80	5	0.2
43[1]	1,000	NA	NA

Notes:
1 Paved area that received a 2-inch asphalt cap
2 The remediation of AEC-16 included the excavation of AEC-26

Rob Posey

The Stanley Works

New Britain, Connecticut

ENSR

REMEDIAL ACTION WORKPLAN FOR SOILS FOR THE FORMER STANLEY TOOLS FACILITY NEWARK, NEW JERSEY ISRA CASE NO. 85178

ENSR Consulting and Engineering

October 1993

Document Number 6303-056(RAW-SOIL.RPT)

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ENSR

ENSR Consulting
and Engineering

Somerset Executive Square 1
One Executive Drive
Somerset, NJ 08873
(908) 560-7323
FAX (908) 560-4688

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October 15, 1993

VIA Federal Express

Mr. Joseph Ludovico
New Jersey Department of
Environmental Protection and Energy
Division of Responsible Party Site Remediation
401 East State Street
Trenton, New Jersey 08625-0028

RE: The Stanley Works ISRA Remediation
140 Chapel Street, Newark, New Jersey
ECRA Case No. 85178

Dear Mr. Ludovico:

On behalf of The Stanley Works (Stanley), enclosed please find three copies of the Remedial Action Workplan for Soils for the above-referenced facility as discussed in our October 6, 1993 meeting. As also discussed, this Remedial Action Workplan supplements and supersedes both the "April 1992 Soils Cleanup Plan" and the "July 1993 Cleanup Plan Addendum".

We are scheduled to conduct the pre-remedial sampling proposed in Section 3.1 on Tuesday, October 19, 1993. We would greatly appreciate your comments before then if possible. I will be out of the office on Monday, but will call you to discuss the sampling program.

As also discussed with you, the business climate for our client has changed, and Stanley is interested in completing remediation on this site at an accelerated pace. we would appreciate an expedited review of this document so we can implement soils remediation currently scheduled for the end of October. As you know, Stanley and ENSR plan on capping this site with asphalt and it is critical that this work be completed before winter weather sets in.

ENSR

Thank you for your anticipated assistance. If you have any questions please feel free to contact me.

Very truly yours,

Richard J. Konkowski

Richard J. Konkowski
Associate

cc: B. Hoover/Stanley Works
A. Kolesar, Esq./Skadden Arps. et al.
W. Duvel
B. Seiverd
A. Goeller
File: 6303-056-8.3.1

The Stanley Works

New Britain, Connecticut

REMEDIAL ACTION WORKPLAN FOR SOILS FOR THE FORMER STANLEY TOOLS FACILITY NEWARK, NEW JERSEY ISRA CASE NO. 85178

ENSR Consulting and Engineering

October 1993

Document Number 6303-056(RAW-SOIL.RPT)

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(Cont'd)

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1.0 INTRODUCTION

This Remedial Action Workplan for Soils has been prepared for the former Stanley Tools facility located at 140 Chapel Street in Newark, New Jersey (see Figure 1-1). This Remedial Action Workplan is intended to supplement the April 1992 PHASE III SAMPLING RESULTS AND REVISED SOIL CLEANUP PLAN AND GROUND WATER CLEANUP PLAN (April 1992 Cleanup Plan) and the addendum to this plan dated July 1993 (July 1993 Cleanup Plan Addendum). This Remedial Action Workplan supplements and supersedes both the April 1992 Cleanup Plan and the July 1993 Cleanup Plan Addendum.

1.1 Summary of Previous Activities

A summary of previous activities (through March 1993) is included in the April 1992 Cleanup Plan. The analytical results of Phase I, II, and III soil sampling activities are summarized on Figures 1-2, 1-3, and 1-4. Areas of Concern (AECs) and proposed remedial activities for each AEC are summarized in Table 1-1. In general, previous activities have determined that metals, petroleum hydrocarbon and polyaromatic hydrocarbon contamination exists within the soils above current New Jersey Department of Environmental Protection and Energy (NJDEPE) Soil Cleanup Criteria.

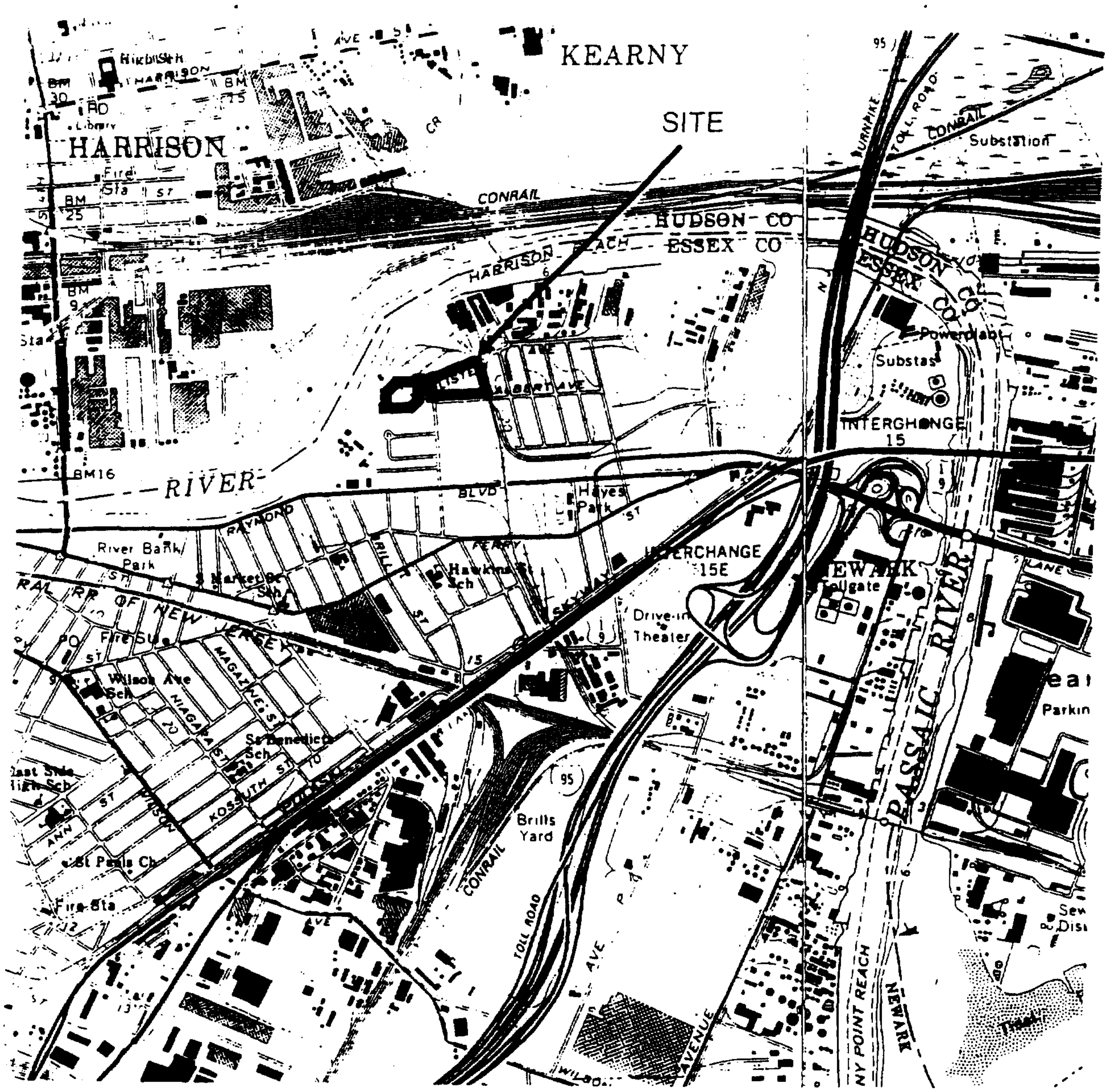
1.2 Remedial Action Workplan Objective

The objective of this Remedial Action Workplan for Soils is to provide specific detailed information regarding the remedial action for soils to be undertaken at the former Stanley Tools facility in Newark, New Jersey which is being under taken to comply with requirements of the Industrial Site Recovery Act (ISRA).

1.3 Identification of AECs to be Remediated

AECs which have been targeted for remediation are summarized below:

- AEC 1 - AEC 1 is a small area of discolored soil located at the northwest corner of Building 25A. Base neutrals compounds (BNs) were detected above NJDEPE cleanup criteria in this area.
- AEC 2 - AEC 2 is a narrow strip of discolored soil north of Building 50 which borders the site property boundary along Lister Avenue. Lead was detected above NJDEPE cleanup criteria in this area.



SOURCE: USGS 7½ Minute Topographic Quadrangle, Elizabeth and Jersey City, New Jersey

SCALE

0 1/4 1/2 1 MILE

N

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FIGURE 1-1

SITE LOCATION MAP

Stanley Works - Newark, New Jersey

DRAWN:	DATE: September 24, 1993	PROJECT NO.:	REV:
FILE NO.: FIG1-1.RPT	CHECKED:	6303-056	1

TABLE 1-1

Areas of Concern Targeted for Remediation

AEC	Approximate Area of Cap (sq.ft.)	Type of Capping	Approximate Depth of Excavation, (ft.)	Approximate Volume of Excavation (cu. yds.)
1	880	LLB	0.5	16
2	225	LLB	0.5	4
2	237	LB	0.75	7
3	766	LB	0.75	21
3	572	LB	10	169
5	806	LLB	0.5	15
6	703	LB	0.75	20
7	2,774	LLB	0.5	51
8, 9, 10, 11, 43	15,099	LLB	0.5	280
12	1470	LLB	0.5	27
13	373	LB	2	28
13	675	LB	10	204
14	976	LLB	0.5	18
16[1]	2400	LB	0.75	67
17, 25	644	LLB	0.5	12
181	1575	LB	0.75	44
19	100	LB	0.75	3
20	6,224	LLB	0.5	115
22[1], 35[1]	1,711	LLB	0.5	32
24	1,813	LLB	0.5	34
26[1]	400	LB	0.75	11
32	700	Concrete	1.0	26
33	100	LB	0.75	3
36[2]	NA	LB	NA	NA
37[2]	NA	LB	NA	NA

TABLE 1-1 (Continued)

Areas of Concern for Remediation

AEC	Approximate Area of Cap (sq.ft.)	Type of Capping	Approximate Depth of Excavation, (ft.)	Approximate Volume of Excavation (cu. yds.)
39[2]	NA	LB	NA	NA
40[2]	NA	LB	NA	NA

Notes:

[1] - Remediation of soils at the water table with TPHCs at concentrations above 10,000 ppm will be addressed as a part of groundwater remediation strategy.
[2] - These areas are covered with an existing asphalt cap.
NA - Not Applicable
LLB - Low Load-Bearing Asphalt Cap
LB - Load-Bearing Asphalt Cap
Table Source: Table 1 Addendum to the April 1992 Revised Soil Cleanup Plan for Stanley Tools, Newark, New Jersey, prepared by ENVIRON Corporation (as modified)

- AEC 3 - AEC 3 is an area of discolored soil located north of Building 51. Lead was detected above NJDEPE cleanup criteria in this area. Additionally, total petroleum hydrocarbons (TPHCs) were detected above NJDEPE cleanup criteria in a small section of AEC 3.

- AEC 5 - AEC 5 is an area of discolored soil along the northern fenceline and north of Building 24B. TPHCs were detected above NJDEPE cleanup criteria in this area.

- AEC 6 - AEC 6 is an area of discolored soil along the fenceline northeast of Building 24. TPHCs were detected above NJDEPE cleanup criteria in this area.

- AEC 7 - AEC 7 is an area of discolored soil at the location of a former waste storage area. Lead and arsenic were detected above NJDEPE cleanup criteria in this area.

- AECs 8, 9, 10, 11 and 43 - AECs 8, 9, 10, 11 and 43 are collectively referred to as AEC 8. These AECs consist of a strip of land east of Building 20A. Metals were detected above NJDEPE cleanup criteria in this area. In localized areas, TPHCs and BNs were also detected above NJDEPE cleanup criteria.

- AEC 12 - AEC 12 is a narrow strip of land located south of Building 21A. TPHCs and lead were detected above NJDEPE cleanup criteria in this area.

- AEC 13 - AEC 13 is located southwest of Building 22A. TPHCs were detected above NJDEPE cleanup criteria in this area.

- AEC 14 - AEC 14 is a small area of discolored soil located near the northeastern corner of Building 1. PCBs, benzene(a)pyrene and lead were detected above NJDEPE cleanup criteria in this area.

- AEC 17 and 25 - AEC 17 is an area of discolored soil on the southeastern side of Building 2C and adjacent to the former location of a 10,000-gallon fuel oil storage tank (AEC 25). TPHCs were detected above NJDEPE cleanup criteria in these areas. Additionally, lead was detected just slightly above NJDEPE cleanup criteria in AEC 17.

- AEC 19 - AEC 19 is a small area of discolored soil behind the pumphouse in the western portion of the site. Lead was detected above NJDEPE cleanup criteria in this area.

- AEC 20 - AEC 20 is located in the western side of the site. Metals and BNs were detected above NJDEPE cleanup criteria in this area.

- AECs 22 and 35 - AECs 22 and 35 are located in a driveway between Buildings 51 and 21A/22A. Lead and arsenic were detected above NJDEPE cleanup criteria in these areas. Additionally, TPHCs were detected above NJDEPE cleanup criteria in AEC 22.

- AEC 24 - AEC 24 is located in the western portion of the site where two fuel oil tanks were formerly located. TPHCs and BNs were detected above NJDEPE cleanup criteria in this area.

- AEC 32 - AEC 32 is a unlined trench with discolored soil within Building 20A adjacent to the east wall. TPHCs and metals were detected above NJDEPE cleanup criteria in this area.

- AEC 33 - AEC 33 is a dry well located near Building 25A. Non-contact cooling water was reportedly discharged to this dry well. TPHCs and BNs were detected above NJDEPE cleanup criteria in this area.

- AEC 36 - AEC 36 is located west of Building 2A and in the location of a former drum storage area. BNs were detected above NJDEPE cleanup criteria in this area. This area is currently paved.

- AEC 37 - AEC 37 is located north of Building 26 and is in the location of a former drum storage area. Lead was detected above NJDEPE cleanup criteria in this area. This area is currently paved.

- AEC 39 - AEC 39 is located north of Building 2C and is in the location of a former drum storage area. TPHCs and lead were detected above NJDEPE cleanup criteria in this area. This area is currently paved.

- AEC 40 - AEC 40 is located east of Building 24A and in the location of a former drum storage area. TPHCs and lead were detected above NJDEPE cleanup criteria in this area. This area is currently paved.

2.0 REMEDIAL STANDARDS

The site is built on an area of historic fill. Currently, there are no adopted remedial standards for soils or historic fill in the State of New Jersey. As discussed in previous submittals, Stanley intends to use action levels consistent with NJDEPE recommended soil cleanup criteria (modified) as outlined in NJDEPE's letter of May 19, 1993, and reiterated in Table 2-1. Stanley does not admit that the NJDEPE's recommended Soil Cleanup Criteria are necessary for the protection of human health or the environment at the site. Stanley reserves the right to propose alternate cleanup standards at the site.

These action levels will be used to determine the need for additional actions. The proposed remedial technology for this site, as discussed in Section 3.0, is Cold Batch Recycling and Capping. Areas exhibiting soil contamination above the action levels cited above will be Cold Batch Recycled and/or Capped.

TABLE 2-1
NJDEPE Soil Cleanup Criteria (ppr

Parameter	Non-Residential Direct Contact Soil Cleanup Criteria	Impact to Ground Water Soil Cleanup Criteria
Volatile Organics		
Acetone	1,000	50
Acrylonitrile	5	100
Benzene	13	1
Bromodichloromethane	22	1
Bromoform	370	1
Bromomethane	1,000	1
2-Butanone (MEK)	1,000	50
Carbon tetrachloride	4	1
Chlorobenzene	680	1
Chloroform	28	1
Chloromethane	1,000	10
Dibromochloromethane	1,000	1
1,1-Dichloroethane	1,000	1
1,2-Dichloroethane	24	1
1,1-Dichloroethene	150	10
1,2-Dichloroethene (trans)	1,000	50
1,2-Dichloroethene (cis)	1,000	50
1,2-Dichloropropane	43	
Ethylbenzene	1,000	100
4-Methyl-2-pentanone (MIBK)	1,000	50
Methylene Chloride	210	10
Styrene	97	100
1,1,1,2-Tetrachloroethane	310	1
1,1,2,2-Tetrachloroethane	70	1
Tetrachloroethylene	6	1
Toluene	1,000	500
1,1,1-Trichloroethane	1,000	50
1,1,2-Trichloroethane	420	1
Trichloroethene (TCE)	54	1
Vinyl chloride	7	1
Xylenes (Total)	1,000	10

TABLE 2-1 (Continued)
NJDEPE Soil Cleanup Criteria (ppm)

Parameter	Non-Residential Direct Contact Soil Cleanup Criteria	Impact to Ground Water Soil Cleanup Criteria
Base/Neutral Extractables		
Acenaphthene	10,000	100
Anthracene	10,000	500
Benzo(b)fluoranthene	4	500
Benzo(a)anthracene	4	500
Benzo(a)pyrene (BaP)	0.66	100
Benzo(k)fluoranthene	4	500
4-Chloroaniline	4,200	
Bis(2-chloroethyl)ether	3	1
Bis(2-chloroisopropyl)ether	10,000	10
Bis(2-ethylhexyl)phthalate	210	100
Butylbenzyl phthalates	10,000	100
Chrysene	40	500
Dibenz(a,h)anthracene	0.66	500
Di-n-buthyl phthalate	10,000	100
Di-n-octyl phthalate	10,000	100
1,2-Dichlorobenzene	10,000	50
1,3-Dichlorobenzene	10,000	100
1,4-Dichlorobenzene	10,000	100
3,3'-Dichlorobenzidine	6	100
1,3-Dichloropropene(cis&trans)	5	1
Diethyl phthalate	10,000	50
Dimethyl phthalate	10,000	50
Fluoranthene	10,000	500
Fluorene	10,000	100
Hexachlorobenzene	2	50
Hexachlorobutadiene	210	50
Hexachlorocyclopentadiene	7,300	100
Hexachloroethane	100	100
Indendo(1,2,3-cd)pyrene	4	500
Isophorone	10,000	10
Naphthalene	4,200	100

TABLE 2-1 (Continued)
NJDEPE Soil Cleanup Criteria (ppr

Parameter	Non-Residential Direct Contact Soil Cleanup Criteria	Impact to Ground Water Soil Cleanup Criteria
Base/Neutral Extractables Cont'd.		
Nitrobenzene	520	50
N-Nitrosodiphenylamine	600	100
N-Nitrosodi-n-propylamine	0.66	1
Pyrene	10,000	500
1,2,4-Trichlorobenzene	1,200	100
Acid Extractables		
4-Chloro-3-methyl phenol	10,000	100
2-Chlorophenol	5,200	50
2,4 Dichlorophenol	3,100	10
2,4-Dimethyl phenol	10,000	10
2,4-Dinitrophenol	2,100	10
2-Methylphenol	10,000	
4-Methylphenol	10,000	
Pentachlorophenol	24	100
Phenol	10,000	50
2,4,5-Trichlorophenol	10,000	50
2,4,6-Trichlorophenol	270	50
Metals		
Antimony	340	Case-by-Case
Arsenic	2	Case-by-Case
Barium	47,000	Case-by-Case
Beryllium	1	Case-by-Case
Cadmium	100	Case-by-Case
Copper	600	Case-by-Case
Lead(Total)	600	Case-by-Case
Mercury(Total)	270	Case-by-Case
Nickel (Soluble salts)	2,400	Case-by-Case
Selenium (Total)	3,100	Case-by-Case
Silver	4,100	Case-by-Case
Thallium	2	Case-by-Case
Vanadium	7,100	Case-by-Case
Zinc	16,000	Case-by-Case

TABLE 2-1 (Continued)
NJDEPE Soil Cleanup Criteria (ppr

Parameter	Non-Residential Direct Contact Soil Cleanup Criteria	Impact to Ground Water Soil Cleanup Criteria
Other		
Benzyl Alcohol	10,000	50
Cyanide	21,000	
PCBs	2	100

3.0 DESCRIPTION OF REMEDIAL ACTIVITIES

3.1 Pre-Remedial Sampling Activities

3.1.1 Summary of Completed Pre-Remedial Sampling Activities

In their July, 1993, ADDENDUM TO THE APRIL 1992 REVISED SOIL CLEANUP PLAN FOR STANLEY TOOLS, ENVIRON proposed to initiate pre-remedial sampling in those areas where asphalt capping would be instigated as the method of remediation. This addendum detailed "the additional sampling (confirmatory, delineation, and post remedial)" that they felt must be completed to fully implement their proposed cleanup methods. Confirmatory samples were collected in order to "evaluate the need for remediation" at specific AECs. Delineation samples were collected in those areas were more data was needed in order to make recommendations regarding the extent of aerial capping needed to properly remediate the area in question. A summary of AECs sampled, rationale behind sampling, and results of analyses will follow. Sample locations are shown on Figure 3-1.

AEC 8, 9, 10, 11, and 43

During their investigation, Environ encountered Volatile Organic Compounds (VOC) during a soil gas survey at the subject site. Delineation samples were collected throughout the soil column and analyzed for VOC in order to "identify a source of VOCs" in the area. Six samples were collected at depths ranging from 4.0 to 4.5 feet below ground surface (fbgs) in PT02 and PT04 and 9.0 to 9.5 fbgs in PT06. Detectable concentrations of Methylene chloride were found in every sample. Toluene was also detected in three of the six samples. Results of all the analyses are given in Appendix B.

AEC 12

In order to further delineate the elevated levels of TPHC found in sample 1201-03, Environ, on behalf of Stanley Tools, collected soil samples from two additional borings located in AEC 12. Sample depths ranged from the surface to 8.5 fbgs. All soil samples were analyzed for TPHC. The soil sample from boring 1203 collected at 6.5 to 7.0 fbgs was also analyzed for Base Neutrals (BN). Results of sample analyses is given in Appendix B.

AEC 16

As indicated in Section III of their Cleanup Plan (April 1992), PCB's were detected in the TIC fraction at an estimated level of 42 ppm, but were not detected using Method 8080. A confirmatory soil sample, and duplicate, was collected in AEC 16 to determine if PCB's were indeed present. Results of sample analyses is given in Appendix B.

AEC 17 and 25

A number of shallow soil samples collected from these AECs during previous investigations contained TPHC and lead at levels exceeding the proposed soil cleanup guidelines. Environ proposed to cap this area with an asphalt cap covering an area approximately 30 feet by 25 feet. In order to further delineate the extent of surficial contamination, Environ collected two additional samples from AEC 17 and analyzed them for TPHC and VOC + 15 respectively. Two additional samples collected from AEC 25 were split, creating four total samples, and treated as duplicates that were analyzed for TPHC, and VOC + 15 respectively. In addition to being analyzed for TPHC, one of the duplicate samples collected from 0.0 to 0.5 was also analyzed for BN + 15. Results of these analyses are shown attached in Appendix B.

AEC 18

As requested in the May 19, 1993 letter from NJDEPE, Environ collected an additional sample from this AEC because the previous sample that was analyzed for BN did not meet quality control criteria based on surrogate recoveries. This sample, and its duplicate, was collected from a depth of 0.0 to 0.5 bgs and analyzed for BN + 15.

Waste Oil Tank

It is our understanding that in the time period between the July, 1993 addendum and the sampling date in August, 1993 an UST was discovered beneath building 52. Soil samples were collected at depths of 6.0 to 6.5 fbgs from areas surrounding the tank and analyzed for TPHC. In addition, one of the samples (WT03) was analyzed for BN + 15, VOC + 15, PCBs, and for Priority Pollutant Metals (PPM). Results of these analyses are shown attached in Appendix B.

3.1.2 Additional Pre-Remedial Sampling Rationale and Proposed Sampling

At the request of NJDEPE, Stanley agreed to evaluate the existing available data and, if necessary, to conduct additional delineation sampling of the soil immediately above the water table. The purpose of the sampling is:

1. To determine if there is a "source area" of highly contaminated soils present at the water table which, through seasonal fluctuations of the groundwater, would periodically become inundated with groundwater and cause contaminants to leach into the groundwater.

2. Provide supplemental information for the "environmental" restrictions to be placed on the site.

The principal focus of concern is for base neutrals (especially carcinogenic PAH) and for metals (particularly lead and zinc). Other parameters (e.g. TPHC and volatiles) will be addressed in this groundwater cleanup. Having this information will make it possible for Stanley to decide whether action is necessary at this time to address any "source areas" that may be identified. To achieve these objectives the following information packages were reviewed in detail.

1. ENVIRON April 1992 "Presentation of Phase III Sampling Results and Revised Cleanup Plan for the Stanley Tools Newark Site" (April 1992 Cleanup Plan)

2. May 19, 1993 letter from NJDEPE to Stanley Works providing conditional approval of the April 1992 Cleanup Plan, and

3. Analytical results from the additional delineation sampling conducted by ENVIRON in July and August, 1993.

4. Analytical results from the June 1993 Groundwater Sampling Report prepared by ENVIRON.

Having reviewed that data, the following logic path was followed to determine whether soil sampling is necessary at the water table.

1. Examine the NJDEPE approval letter of May 19, 1993. If ENVIRON and NJDEPE have agreed that delineation is complete and no further action is necessary, then no sampling is required.

2. No further sampling is necessary in AECs that Stanley has agreed to excavate to 10 feet.

3. Examine the concentration of TPHC, metals, and BN in the surficial soils in each AEC. Determine if that constituent is of concern at the surface. If so, continue the evaluation for each constituent, evaluate the body of soil data and make the following determinations.

	Condition	Action
a.	No subsurface data at all exists for the parameter.	Evaluate groundwater condition.
b.	The concentration decreases with depth but is above NJDEPE "Soil Cleanup Criteria" (SCC) at the water table.	Evaluate groundwater condition.
c.	The concentration decreases with depth and is below SCC at the water table.	No sampling necessary.
d.	The concentration increases with depth and is above SCC at the water table.	Evaluate groundwater conditions.
e.	The concentration increases with depth and is below SCC at the water table.	No sampling necessary.

4. Evaluate the groundwater conditions at or downgradient of the AEC as determined in the previous step and make the following determination:

	Condition	Action
a.	No monitoring well is nearby or no data is available for the analyte of interest.	Collect soil sample.
b.	The analyte concentration is below NJDEPE Class II A Ground Water Quality Standards (GWQS).	No sampling necessary.
c.	The analyte concentration is above GWQS.	Collect soil sample.
d.	Free product is in the well.	Collect soil sample.

Based on the results of this evaluation and decision path, it was determined that one soil boring will be advanced at the following locations.

AEC
1
12
14
16
17, 25, 39 (one boring)
18
22, 35 (one boring)

Notes:

NJDEPE currently does not have "Impact to Groundwater Soils Cleanup Criteria" (Subsurface Cleanup Criteria) for metals or a numeric groundwater quality standards for TPHC. For comparison purposes "Non-residential Direct Contact Soil Cleanup Criteria" were used for subsurface cleanup criteria and a concentration of 1,000 ppb total TPCH was used for a groundwater quality standard.

One soil sample will be obtained from each boring just above the water table. The sample at the water interface will be analyzed for BN at all AECs. The sample at AEC 14 will also be analyzed for PCBs. (Review of the available information show there is already enough data to characterize metals for the site).

A more detailed evaluation of each AEC is presented in the following section.

3.1.3 Evaluation of Each AEC

AEC 1

Location: West side of buildings 25 A and 53.

During the Phase I investigation at the Stanley Works facility by Environ Corporation, three soil samples were collected from boring 101 in AEC 1. Total Petroleum Hydrocarbon (TPHC) concentrations ranged from 1030 ppm, in the sample from 0.0 to 1.0 feet below ground surface (fbgs), to not detectable (ND) in the sample collected at 8.0 to 9.0 fbgs. During Phase III sampling two duplicate samples were collected from boring 102 at a depth of 0.5 to 1.0 fbgs and analyzed for Base Neutrals (BN). Several Carcinogenic Polycyclic Aromatic Hydrocarbons (CaPAH) were detected in that soil sample at levels exceeding their respective SCC. Based on further need for a sample analysis in the deeper parts of the soil column, ENSR will collect one soil sample from this area as previously indicated.

AEC 2

Location: Rectangular area of discolored soil North of building 50.

In response to the April 1992 Cleanup Plan, the New Jersey Department of Environmental Protection and Energy (NJDEPE) stated on page 7, section B of their May 19, 1993 conditional approval letter that the results of required sampling indicated that BN and TPHC are not a concern at the levels encountered in this area. Lead concentrations decrease from levels above SCC at the surface to levels significantly below SCC in the samples collected from 8.5 to 9.0 and from 10.0 to 10.5 fbgs. This decrease in lead concentrations indicates that vertical migration due to leaching should not adversely effect the groundwater quality and, therefore, ENSR does not feel further soil sampling should be required in this area.

AEC 3

Location: Area of discolored soils North of building 51.

Laboratory analysis of a soil sample collected from boring 301 reported concentrations of lead and TPHC above SCC in the sample collected from 0.0 to 0.5 fbgs. A soil sample collected from boring 302 reported lead concentrations above SCC in the sample collected from 0.0 to 0.5 fbgs. TPHC concentrations in boring 302 were above SCC in the sample collected from 6.5 to 7.5 fbgs and in the sample collected from 9.5 to 10.0 fbgs. Concentrations of lead that were above SCC in the surficial samples decreased to levels below SCC in the intermediate sample and in the two deeper samples collected from boring 302. ENSR proposes to excavate to 10 fbgs in that area where elevated levels of TPHC were found in order to remove the potential source of TPHC in soil which could adversely affect groundwater in the future. No further soil sampling should be needed in this area.

What about the Pb?
Why aren't post-ex. samples proposed?

AEC 4

Location: Discolored soil in drainage area for storage shed.

In their May 14, 1993 conditional approval letter, the NJDEPE indicated on page 8, section D that no further action for this AEC would be required. This determination was based upon additional sampling that indicated the levels of TPHC, BN, and metals in this area did not exceed the SCC for non-residential direct contact nor the cleanup criteria for impact to groundwater. Based on these recommendations, ENSR does not propose any further soil sampling in this particular AEC.

AEC 5 & 6

Location: Areas of discolored soil along the north fenceline, north of building 24 B.

Surficial concentrations of TPHC that exceeded SCC in both AEC 5 (boring 501) and 6 (boring 601) decrease to levels below SCC in the intermediate sample and sample collected above water table (wts). Lead concentrations which were below SCC in surface samples collected in AEC 5 and 6 also showed a decreasing trend of concentration with depth. Based on these decreasing analyte concentrations, with depth, to levels below SCC, ENSR does not feel that additional soil sampling should be required.

AEC 7

Location: Area of discolored soil at the location of a former waste storage area.

Analytical results of soil samples collected from AEC 7 (borings 702,705, 706 and 707) show levels of arsenic, lead and zinc in the surficial samples that exceed SCC for non-residential direct contact soils. Concentrations of these metals found in boring 702 in the intermediate and wts were below SCC. The NJDEPE, in their May 19, 1993 conditional approval letter, voiced some concern over the lack of data required to define the lateral extent of zinc contamination. Laboratory analysis of a groundwater sample collected from a monitoring well estimated to be downgradient (MW-10) reported estimated concentrations of metals above GWQS but below the method detection limits. Based on the trend of decreasing metals concentrations in the soil samples, and on analytical groundwater data collected from MW-10, further sampling should not be necessary in this particular AEC.

AEC 8, 9, 10, 11, and 43

Location: Strip of land east of building 20 A.

Analytical results for all soil samples except for those collected from boring 1001 showed a trend of decreasing analyte concentrations, with depth, to levels below SCC. Boring 4001 showed a slight increase in TPHC concentrations towards the intermediate depth (4.0 to 6.0 fbgs) that decreased to ND for the sample collected near the wts (11.0 to 11.5 fbgs). Boring 1001 showed lead concentrations first decreasing, then increasing with depth to a concentration that exceeds SCC at a depth of 10.5 to 11.0 fbgs. Laboratory analysis of a groundwater sample collected from nearby MW-2 show concentrations of lead and chromium below method detection limit (bmdl). Laboratory review of mass spectral data reported estimated concentrations of lead in the groundwater sample that exceed GWQS. Laboratory analysis of a groundwater sample from

MW-2 reported concentrations of selenium (collected August, 1993) above GWQS. Laboratory analysis of a groundwater sample collected from MW-19 (August, 1993) which appears to be slightly more downgradient (relative to MW-2) from boring 1001 did not reveal detectable concentrations of lead or selenium. Therefore, additional soil samples should not be needed for this particular AEC.

AEC 12

Location: Area of discolored soil on south side of building 2 A.

Laboratory analysis of soil samples collected from AEC 12 (boring 1201) reported concentrations of lead in two near-surface samples that were above SCC. TPHC concentrations in boring 1201 at the surface (0.0 to 0.5 fbgs) were also above SCC but rapidly decreased to levels below SCC in the sample collected at 1.0 to 1.5 fbgs. Laboratory analysis of a soil sample collected from boring 1202 reported concentrations of lead in the wts that were well below SCC. Laboratory analysis of a soil sample collected in August, 1993, from a depth of 6.5 to 7.0 fbgs reported concentrations of isophorone above SCC. Laboratory analysis of a groundwater sample collected from a nearby monitoring well (MW-36) during the Phase III assessment reported levels of TPHC above GWQS. Based on the absence of data from MW-36 during the most recent sampling event in June, 1993, and on the absence of soil data from portions of the soil column just above the water table in boring 1201, further soil sampling will be collected as previously indicated.

AEC 13

Location: Area of discolored soil located along southwestern side of building 2 A.

Laboratory analysis of soil samples collected from boring 1302 reported concentrations of TPHC that increased with depth to a level that exceeds SCC. Laboratory analysis of soil samples collected from boring 1301 reported concentrations of TPHC that exceed SCC at the surface but decrease to a level below SCC in that sample collected from 6.5 to 8.0 fbgs. ENSR proposes to excavate to approximately 10 fbgs in that area where elevated TPHC concentrations were found in order to remove a potential source which could adversely affect groundwater quality in the future. No further soil sampling should be needed in this area.

AEC 14

Location: Small area of discolored soil near northwest corner of building 1.

Laboratory analysis of soil samples collected from AEC 14 reported surficial concentrations of lead in boring 1401, Polychlorinated Biphenyls (PCB) in boring 1402, and BN in boring 1402 that exceeded SCC. Laboratory analysis of a groundwater sample from MW-13 reported levels of TPHC exceeding GWQS. Based on the absence of intermediate and wts analytical soil data for PCB, and on the elevated TPHC concentrations present in MW-13, ENSR proposes to collect a soil sample from this area as previously indicated.

AEC 15

Location: Small area of discolored soil near northwest corner of building 1.

In their May 19, 1993 conditional approval letter, the NJDEPE stated on page 12, section L that Stanley Tools' proposal for no further action is acceptable provided that a use restriction is incorporated into the property deed and that direct contact with the soils, in addition to further degradation of groundwater, be prevented. ENSRs' proposal to cap the entire site area, including this area, should satisfy both requirements. It is our belief that no further sampling should be required in this particular AEC.

AEC 16

Location: Area of discolored soil in the vicinity of the transformer.

Laboratory analysis of soil samples collected from borings 1601 and 1603 reported increasing concentrations of TPHC as the water table was approached. The levels of TPHC found in samples from boring 1601 at 9.0 to 10.0 fbgs and from boring 1603 at 7.0 to 8.0 fbgs exceeded SCC. Groundwater samples apparently were not collected from a nearby monitoring well (MW-16) because of the reported presence of free product. Based on the increasing levels of TPHC, and on the absence of groundwater data from MW-16, ENSR proposes to collect a soil sample from this area as previously indicated.

AEC 17, 25, and 39

Location: Area of discolored soil located near northeast corner of building 2C.

These three AEC's are being grouped together because of their close proximity to one another. Laboratory analysis for soil samples collected from borings 2501, 1701 and 2502 reported surficial concentrations of TPHC that exceed SCC. Concentrations of TPHC at the intermediate depths in boring 2502 also exceeded SCC. Laboratory analysis of soil samples collected from boring 3901 reported increasing concentrations of TPHC to levels above SCC at the wts.

Analysis of a groundwater sample collected from a monitoring well (MW-26) estimated to be downgradient from the borings in question reported concentrations of TPHC above GWQS. Based on the absence of soil analysis data from a wts, ENSR proposes to collect a soil sample from this area as previously indicated.

AEC 18

Location: Large area of discolored soil located in the vicinity of buildings 1 and 2A.

Laboratory analysis of a soil sample collected from boring 1801 reported concentrations of TPHC first decreasing, then increasing with depth to a level exceeding SCC in the sample collected from 9.0 to 10.0 fbgs. Based on the fact that no immediate downgradient monitoring well data is available, ENSR proposes to collect a soil sample from this area as previously indicated.

AEC 19

Location: Small area of discolored soil located behind the pump house.

Laboratory analysis of soil samples collected from boring 1901 indicate that lead concentrations exceeding SCC at the surface start to decrease to below SCC at the sample interval from 1.5 to 2.0 fbgs. Groundwater data from a monitoring well (MW-35) estimated to be downgradient from the area in question reported estimated lead concentrations above GWQS but below the method detection limit. It is, therefore, reasonable to assume that vertical migration of lead to the point of groundwater contravention is not occurring. ENSR does not feel that further soil sampling should be required in this particular AEC.

AEC 20

Location: Large area of discolored soil north of RR tracks.

Laboratory analysis of soil samples collected from AEC 20 reported concentrations of metals above SCC in nearly all surficial samples. Concentrations of metals, except for zinc, decreased to levels below SCC in the intermediate samples collected from 2.0 to 2.5 fbgs. Analysis of metals in wts was limited to two of the three test pits located in AEC 20. Laboratory analysis of a wts collected from test pit 22 (TP22) reported zinc concentrations above SCC. Laboratory analysis of soil samples collected from TP26 reported levels of zinc first increasing to a concentration above SCC in the intermediate sample (3.0 to 3.5 fbgs), then decreasing in the wts to a level below SCC. Laboratory analysis of a groundwater sample collected from monitoring well (MW-7) located at the northern end of AEC 20 reported concentrations of lead and arsenic in concentrations exceeding GWQS. Laboratory analysis of a groundwater sample collected from MW-7 in August, 1993 did not report concentrations of arsenic above GWQS. Laboratory analysis of groundwater samples collected from MW-25, which is located at the southern end of AEC 20, did not report concentrations above GWQS for any analyte collected from that well during the three phases of investigations. Concentrations of lead above GWQS but below method detection limits were found in MW-25 during the August sampling event. Based on the large amount of data already accumulated for this area, including data at the water table, ENSR does not believe further delineation sampling should be required.

AEC 21

Location: 10,000 gallon underground fuel oil storage tank (UST) located east of building 26 A which formerly contained quench oil and fuel oil (excavated October, 1989).

The NJDEPE approved Stanley Tools' no further action proposal for this area in the NJDEPE's May 18, 1992 conditional approval letter.

AEC 22 and 35

Location: 2-1,000 gallon UST which formerly held Quench oil and Fuel oil and the discharge point from the sump which drains from the pump house, and the former drum storage area detected on the site Aerial Photographs.

Laboratory analysis of soil samples collected from two of the borings (2202 and 2205) reported concentrations of TPHC that increased with depth to levels above SCC in the wts. Laboratory analysis of soil samples collected from two additional borings (2206 and 2207) reported concentrations of TPHC that generally decreased to levels below SCC. Laboratory analysis of a groundwater sample collected from MW-21 reported concentrations of TPHC and BN above GWQS. Based on the increasing concentrations of TPHC found in boring 2202 and boring 2205, and on elevated levels of analytes found in MW-21, ENSR proposes to collect an additional sample from this area as previously indicated.

AEC 23

Location: One (1) 12,000 gallon sand covered fuel oil storage tank (excavated October, 1989)

The NJDEPE approved Stanley Tools' no further action proposal for this area in NJDEPE May 19, 1993 conditional sampling plan approval letter.

AEC 24

Location: Two (2) 8,000 gallon fuel oil UST and one (1) 3,000 gallon fuel oil tank. (Excavated October, 1989 and February, 1990 respectively)

Laboratory analysis of soil samples collected from boring 2402 reported decreasing concentrations of TPHC to levels above SCC as depths nearing the water table were approached. Laboratory analysis of groundwater samples collected from MW-35 reported TPHC concentrations in excess of GWQS. Lead was found in MW-35 at concentrations above GWQS but below method detection limits during the August sampling event. Based on the large amount of data already present for the entire soil column, additional delineation sampling should not be required.

AEC 26

Location: 2 (2) 1,500 gallon UST's containing Naptha/Quench oil and gasoline respectively.

Laboratory analysis of soil samples collected from boring 2601 and from boring 2602 reported TPHC concentrations that generally increased with depth. Reported concentrations of TPHC in the wts were well below SCC. ENSR does not feel that further soil sampling should be needed in this particular AEC.

AEC 27 and 28

Location: Discolored wood block floors located in western and eastern portions of building 21A.

No analytical soil data has been generated for these two particular areas. However, the NJDEPE stated that if the concrete flooring beneath building 21A can be shown to be structurally sound, they may eliminate the sampling requirements for the soils said building. An inspection of the flooring was completed by the required personnel, and the flooring was found to be intact (no cracks, holes, or obvious signs of deterioration. Based on these findings, ENSR does not believe that further soil sampling will be required.

AEC 29

Location: Area of discolored flooring in the former pump house in building 8.

Submittal of required sampling data as required in the NJDEPE's May 19, 1993 conditional approval letter should negate the need for additional soil sampling.

AEC 30

Location: Damaged Asbestos Insulation on the boiler in buildings 2C and on the piping throughout the facility.

This area concerns asbestos on piping. As a result additional soil sampling is not necessary.

AEC 31

Location: The floor in the hammer and press pit foundations in building 1.

The press pit foundations building 1 were inspected by the required personnel and found to be clean. ENSR does not feel additional sampling should be necessary in this area.

AEC 32

Location: The unlined trench containing discolored sediments located parallel to the east wall of building 20A.

Laboratory analysis of soil samples collected from borings 3201, 3202, 3203, 3204, and 3205 reported surface concentrations of lead and/or TPHC in excess of SCC. Analyte concentrations generally decreased, ~~with depth~~, but continued to stay at levels above SCC. Laboratory analysis of groundwater samples collected from MW-24 did not report concentrations of lead or TPHC above GWQS. Laboratory analysis of a groundwater sample collected in August, 1993 reported concentrations of BN above GWQS. Therefore, based on the laboratory results for the groundwater samples, it does not appear that lead migration is occurring to the extent where the groundwater quality is contravened. ENSR does not believe that further soil sampling is required in this particular area.

AEC 33

Location: Dry well into which non-contact cooling water from building 25 was discharged.

Laboratory analysis of soil samples collected from all borings reported decreasing analyte concentrations, with depth, to levels below SCC. Based on these results, ENSR does not feel that further soil sampling is should be required in this area.

AEC 34

Location: The reservoir located east of building 21A which formerly contained contact and non-contact cooling water.

The reservoir mentioned above was cleaned, inspected for integrity by NJDEPE on October 6, 1993, and found to be intact. ENSR does not believe further soil sampling will be required.

AEC 36

Location: The former drum storage area detected on the site aerial photographs.

Laboratory analysis of a soil sample collected from boring 3601 reported concentrations of lead at the surface which exceeded SCC. The lead concentrations decreased, with depth, to levels below SCC. Vertical migration of lead to the extent where groundwater quality would be contravened, is not probable. ENSR does not believe further soil sampling should be necessary in this particular AEC.

AEC 37

Location Former drum storage area detected on site aerial photographs.

Laboratory analysis of soil samples collected from boring 3701 reported surficial lead concentrations above SCC. The concentrations decrease, with depth, to levels below SCC in that sample collected from 4.0 to 4.5 fbgs. Based on this finding, ENSR does not feel that vertical lead migration would occur to the point where groundwater quality is adversely affected, therefore, no further sampling should be required.

AEC 38

Location: NJDEPE approved Stanley Tools' no further action for this AEC in NJDEPE letter dated February 11, 1992.

AEC 40

Location: Former drum storage area detected on the site aerial photographs.

Laboratory analysis of soil samples collected from boring 4001 reported decreasing concentrations of lead and TPHC to levels below SCC at the wts. Vertical migration of these analytes should not adversely affect the groundwater quality below. ENSR does not feel that additional soil samples are necessary.

AEC 41

Location: Stanley Tools' no further action proposal, based on the laboratory results from the required additional sampling which support the absence of significant contamination, has been accepted by the NJDEPE.

AEC 42

Location: Former drum storage area detected on the site aerial photographs.

Laboratory analysis of soil samples collected from boring 4201 reported surficial lead concentrations in excess of SCC. These elevated levels decrease, with depth, to levels below SCC in the intermediate sample (6.0 to 6.5 fbgs) and in the wts (10.5 to 11.0 fbgs). The rapidly decreasing lead concentrations indicate that downward, vertical migration is not a major concern relative to groundwater quality. ENSR does not believe that further soil samples will be needed from this particular AEC.

AEC 44

Location: Contaminated soils area containing elevated levels of lead, located adjacent to the west side of Chapel Street. The NJDEPE accepted Stanley Tools' no further action. ENSR does not feel additional soil samples are necessary in this area.

AEC 45

Location: Former 450 gallon quench oil tank and pit located in building 25B.

The NJDEPE previously approved Stanley Tools' no further action proposal for this area. ENSR does not feel additional soil samples are necessary in this area.

3.2 Remedial Approach

There are two basic types of remedial activities which will be conducted at the site. The remedial activities are cold batch recycling (soil reuse) and capping. Both of these remedial approaches will mitigate exposure by physically making contaminants inaccessible for ingestion, inhalation, and dermal contact. Additionally, both remedial approaches will mitigate the potential for leaching by significantly reducing the rate of the infiltration of rainwater.

Each remedial approach is further described below:

3.2.1 Cold Batch Recycling (Soil Reuse)

Cold batch recycling (soil reuse) is a process by which liquid asphalt is used to stabilize contaminants and provide a material suitable for a pavement base or sub-base. Stabilization occurs as the asphalt emulsion coats contaminated soil particles. Stabilization is then completed as the asphalt cures and is compacted into a monolithic mass. The stabilization of contaminated soil using cold batch recycling (asphalt stabilization) has been successfully demonstrated through bench, pilot and full scale applications. Leaching of contaminants including TPHCs, PCBs, metals, BNs, and volatile organics have been successfully stabilized with this technology. Applied Environmental Recycling Systems, Inc. (AERS) has been selected to perform cold batch recycling at the former Stanley Tools facility in Newark, New Jersey. Appendix A includes the following AERS' literature:

- An introduction to AERS (Statement of Qualifications)
- Summary of stabilization of soil contaminants
- Summaries of Remedial and Investigatory Actions (AERS job sheets)

In the cold batch recycling process (soil reuse) to be used at the site, certain contaminated soils (as set forth in Section 3.2) will be first excavated and screened to remove objectional material such as large rocks or similar debris. The soil will then be placed in a pug mill or similar device for mixing. Liquid asphalt emulsion will be added and mixed thoroughly with the soil. The resulting soil and asphalt mixture will then be stockpiled for a brief curing period (approximately 72 hours) prior to being placed in lifts and compacted to form a sub-base suitable for the load bearing or low load bearing asphalt cap. A diagram of cold batch recycling process is illustrated on Figure 3-2.

3.2.2 Capping

Capping will be conducted using standard construction practices as set forth below. Areas of existing pavement which have deteriorated or are of questionable integrity will be repaved. Areas

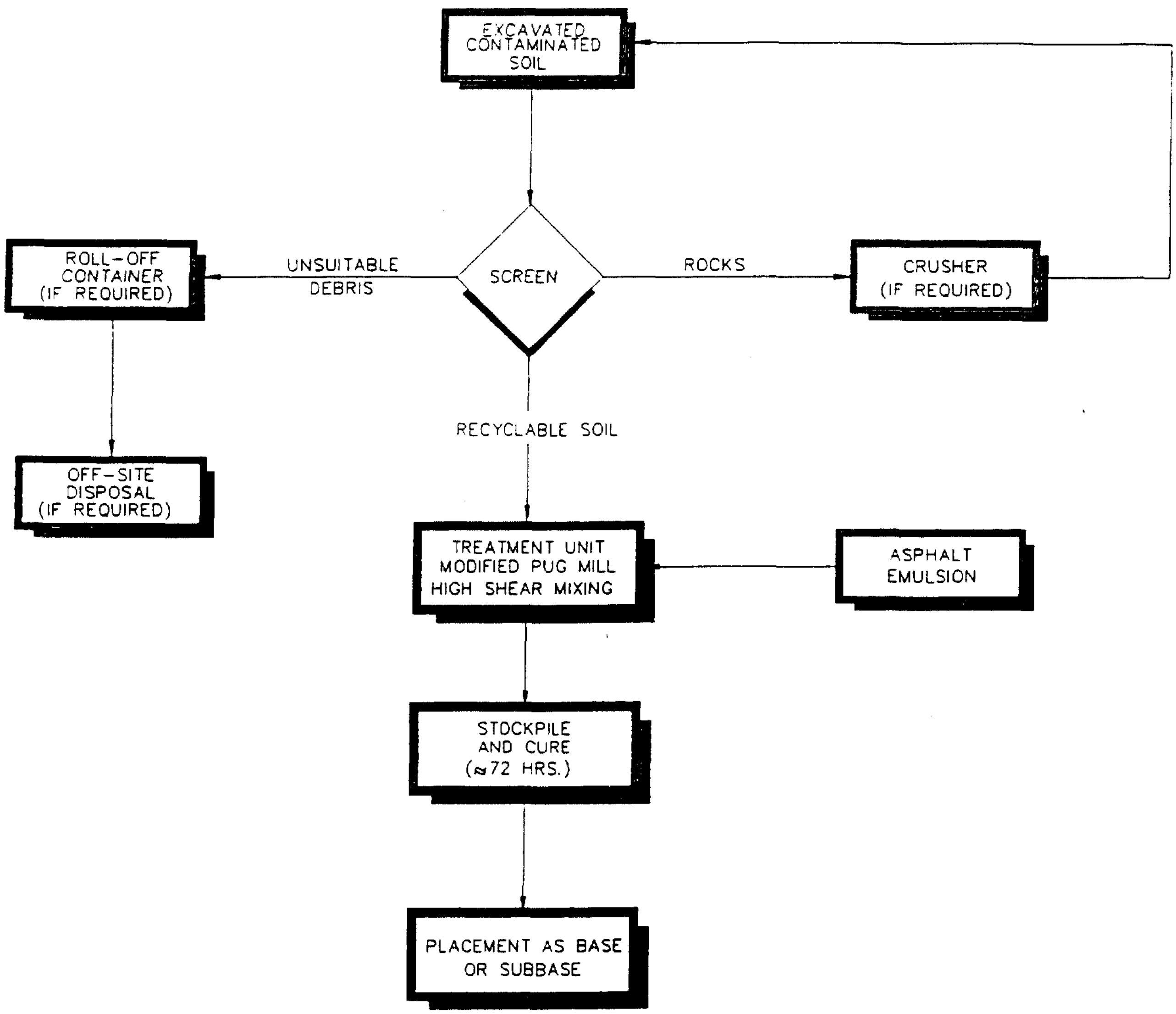

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FIGURE 3-2

COLD BATCH RECYCLING PROCESS FLOW CHART

where cold batch recycled materials have been placed (as a sub-base) will be paved. Where traffic loads from trucks and other vehicles are anticipated, the asphalt will be designed to handle such anticipated loads (load bearing cap). Where traffic loads from trucks and other vehicles are not anticipated (walkways, courtyards, etc.), low load bearing asphalt will be used.

One trench area (AEC 32) within Building 20A will be capped with concrete to meet the grade of the existing finished floor within the building.

3.2.2.1 Load Bearing Cap

The load bearing cap will be a 2-inch thick I-5 (N.J.D.O.T.) top coat with 9-inches of compacted base. Base materials may include cold batched recycled material, existing asphalt, and/or crushed stone. Where existing asphalt will serve as a base, vegetation will be removed, if present, and a tack coat will be applied prior to placing the final 2-inch thick top coat. The tack coat will serve as a bonding agent between existing asphalt and new asphalt. Tack coats will be applied following manufacturer recommendations (approximately 0.1 gallons/square yard or less). Where asphalt is not present, soils will be excavated, as needed, to place a 9-inch base. This will typically involve excavation of 9 inches of soil. Excavated soil will be cold batch recycled. A typical cross-section detail of a load bearing cap is shown on Figure 3-1.

3.2.2.2 Low Load Bearing Cap

The low load bearing cap will be a 2-inch thick I-5 (N.J.D.O.T.) top coat underlain with six inches of compacted base. Base material may include cold batch recycled material, existing asphalt and/or crushed stone. Where existing asphalt will serve as a base, vegetation will be removed, if present, and a tack coat will be applied, as described in Section 3.1.2.1, prior to placing the final 2-inch thick top coat. Where asphalt is not present, soils will be excavated, as needed, to place a 6-inch base. This will typically involve excavation of 6-inch of soil. Excavated soil will be cold batch recycled. A typical cross-section detail of a low load bearing cap is shown on Figure 3-1.

3.3 Remedial Approach for Specific AECs

As discussed above, the remedial approach for the site will be cold batch recycling for specific areas and capping for the entire site. Since the entire site is either being capped or will be covered by buildings, no additional delineation sampling or post-excavation sampling will be conducted. Figure 3-1 depicts the AECs scheduled for remediation, existing paved areas, extent of areas of excavation, and extent of areas to be capped. The remedial approach for each specific AEC is outlined below:

- AEC 1 - AEC 1 is a small area of discolored soil located at the northwest corner of Building 25A. BNs were detected above NJDEPE cleanup criteria in this area.

  Remediation in this area will consist of excavation, cold batch recycling and capping. Approximately 6 inches of soil will be excavated and recycled into cold batch material. A minimum of 6 inches of cold batch material will be used as a base for a 2-inch thick top coat resulting in a low load bearing cap.

- AEC 2 - AEC 2 is a narrow strip of discolored soil north of Building 50 and bordering the site property boundary along Lister Avenue. Lead was detected above NJDEPE cleanup criteria in this area.

  Remediation in this area will consist of excavation, cold batch recycling and capping. There are two distinct portions of AEC 2. The cap between the fence and Building 50, and the adjacent paved area will be a excavated to a depth of approximately 6 inches. Excavated soil will be cold batch recycled. A minimum of 6 inches of cold batch recycled material will be placed in this area to provide a base for a 2-inch thick top coat of asphalt resulting in a low load bearing cap. The portion of AEC 2 which is currently paved will receive a tack coat and a 2-inch thick top coat resulting in a load bearing cap.

- AEC 3 - AEC 3 is an area of discolored soil located north of Building 51. Lead was detected above NJDEPE cleanup criteria in this area. Additionally, total petroleum hydrocarbons (TPHCs) were detected above NJDEPE cleanup criteria in a small section of AEC 3.

  Remediation in this area will consist of excavation of soil to an approximate depth of 10 feet, cold batch recycling and capping. Excavation sidewalls will be sloped (1:1 or as determined by a structural engineer), where necessary, to provide structural integrity of adjacent structures. Excavated soil will be cold batch recycled. The excavation will be

  backfilled with clean fill from an off-site source to within 9 inches of existing grade. A minimum of 9 inches of cold batch recycled material will be placed in this area prior to providing a 2-inch thick top coat of asphalt resulting in a load bearing cap.

- AEC 5 - AEC 5 is an area of discolored soil along the northern fenceline and north of Building 24B. TPHCs were detected above NJDEPE cleanup criteria in this area.

Remediation in this area will consist of soil excavation to an approximate depth of 9 inches, cold batch recycling, and capping. Excavated soil will be cold batch recycled. A minimum of 9 inches of cold batch recycled material or crushed stone/asphalt will be placed in this area prior to providing a 2-inch thick top coat of asphalt resulting in a load bearing cap.

- AEC 6 - AEC 6 is an area of discolored soil along the northern fenceline, northeast of Building 24. TPHCs were detected above NJDEPE cleanup criteria in this area.

  Remediation in this area will consist of soil excavation to an approximate depth of 9 inches, cold batch recycling, and capping. Excavated soil will be cold batch recycled. A minimum of 9 inches of cold batch recycled material or crushed stone/asphalt will be placed in this area prior to providing a 2-inch thick top coat of asphalt resulting in a load bearing cap.

- AEC 7 - AEC 7 is an area of discolored soil at the location of a former waste storage area. Lead and arsenic were detected above NJDEPE cleanup criteria in this area.

  Remediation in this area will consist of soil excavation, cold batch recycling, and capping. Approximately 9 inches of soil will be excavated and cold batch recycled. A minimum of 9 inches of cold batch recycled material or crushed stone/asphalt will be placed in this area prior to providing a 2-inch thick top coat of asphalt resulting in a load bearing cap.

- AECs 8, 9, 10, 11 and 43 - AECs 8, 9, 10, 11 and 43 are located east of Building 20A. Metals were detected above NJDEPE cleanup criteria. In localized areas, TPHCs and BNs were also detected above NJDEPE cleanup criteria. Additionally, a soil gas survey detected volatile organics in portions of AEC 8.

  Remediation in this area will consist of excavation, cold batch recycling, and capping. In areas not already paved, approximately 9 inches of soil will be excavated, and cold batch recycled. A minimum of 9 inches of cold batch material or crushed stone/asphalt will be placed prior to providing a 2-inch thick top coat of asphalt resulting in a load bearing cap. In areas with existing pavement, a tack coat will be applied to existing pavement prior to providing a 2-inch thick top coat resulting in a load bearing cap.

- AEC 12 - AEC 12 is a narrow strip located south of Building 21A. TPHCs and lead were detected above NJDEPE cleanup criteria in this area.

Delineation sampling as proposed in the July 1993 Cleanup Plan Addendum, has been conducted. The results of delineation sampling will be summarized in the September 1993 progress report. If necessary, Remedial Action Workplan modifications will be made to reflect these results.

Remediation in this area will consist of soil excavation, cold batch recycling and capping. Approximately 6 inches of soil will be excavated and cold batch recycled. A minimum of 6 inches of cold batch recycled material or crushed stone/asphalt will be placed prior to providing a 2-inch thick top coat of asphalt resulting in a low load bearing cap.

- AEC 13 - AEC 13 is located southwest of Building 22A. TPHCs were detected above NJDEPE cleanup criteria in this area.

  Remediation in this area will consist of soil excavation, cold batch recycling, and capping. As shown on Figure 3-1, the portion of AEC 13 south of Building 22A will be excavated to an approximate depth of 2 feet and the portion of AEC 13 west of Building 22A will be excavated to an approximate depth of 10 feet. Excavation sidewalls will be sloped (1:1 or as determined by a structural engineer), where necessary, to provide structural integrity of adjacent structures. Excavated soil will be cold batch recycled. The excavation will be backfilled with clean fill from an off-site source to within 6 inches of existing grade. Cold batch recycled material or crushed stone/asphalt will be then placed in this area prior to providing a 2-inch thick top coat of asphalt resulting in a low load bearing cap.

- AEC 14 - AEC 14 is a small area of discolored soil located near the northeastern corner of Building 1. PCBs, benzo(a)pyrene and lead were detected above NJDEPE cleanup criteria in this area.

  Remediation in this area will consist of soil excavation, cold batch recycling, and capping. Approximately 9 inches of soil will be excavated and cold batch recycled. A minimum of 9 inches of cold batch recycled material or crushed stone/asphalt will be placed prior to providing a 2-inch thick top coat of asphalt resulting in a load bearing cap.

- AECs 17 and 25 - AEC 17 is an area of discolored soil on the southeastern side of Building 2C and adjacent to the former location of a 10,000 gallon fuel oil storage tank (AEC 25). TPHCs were detected above NJDEPE cleanup criteria in these areas. Additionally, lead was detected just slightly above NJDEPE cleanup criteria in AEC 17.

Remediation in this area will consist of soil excavation, cold batch recycling, and capping. Approximately 9 inches of soil will be excavated and cold batch recycled. A minimum of 9 inches of cold batch recycled material or crushed stone/asphalt will be placed prior to providing a 2-inch thick top coat of asphalt resulting in a load bearing cap.

- AEC 19 - AEC 19 is a small area of discolored soil behind the pumphouse in the western portion of the site. Lead was detected above NJDEPE cleanup criteria in this area.

  Remediation in this area will consist of soil excavation to an approximate depth of 9 inches, cold batch recycling and capping. Excavated soil will be cold batch recycled. A minimum of 9 inches of cold batch recycled material or crushed stone/asphalt will be placed in this area prior to providing a 2-inch thick top coat of asphalt resulting in a load bearing cap.

- AEC 20 - AEC 20 is area located in the western side of the site. Metals and BNs were detected above NJDEPE cleanup criteria in this area.

  Remediation in this area will consist of limited railroad track removal, soil excavation, cold batch recycling, and capping. Approximately 9 inches of soil will be excavated and cold batch recycled. A minimum of 9 inches of cold batch recycled material or crushed stone/asphalt will be placed prior to providing a 2-inch thick top coat of asphalt resulting in a load bearing cap.[1]

- AECs 22 and 35 - AECs 22 and 35 are located in a driveway between Buildings 51 and 21A/22A. Lead and arsenic were detected above NJDEPE cleanup criteria in these areas. Additionally, TPHCs were detected above NJDEPE cleanup criteria in AEC 22.

  Remediation in this area will consist of soil excavation, cold batch recycling, and capping. In unpaved areas, soils will be excavated to an approximate depth of 9 inches. Excavated soils will be cold batch recycled and a minimum of 9 inches of cold batch recycled material or crushed stone/asphalt will be placed prior to providing a 2-inch thick top coat of asphalt resulting in a load bearing cap. In areas with existing

[1] As discussed during the site meeting with NJDEPE on October 6, 1993, Stanley does not own a portion of the property in AEC 20. Stanley intends to remediate such portion of AEC 20 as described above subject to obtaining appropriate approval from the property owner.

pavement, a tack coat will be applied prior to providing a 2-inch thick top coat resulting in a load bearing cap.

- AEC 24 - AEC 24 is located in the western portion of the site where two fuel oil tanks were formerly located. TPHCs and BNs were detected above NJDEPE cleanup criteria in this area.

  Remediation in this area will consist of soil excavation, cold batch recycling, and capping. Approximately 9 inches of soil will be excavated and cold batch recycled. A minimum of 9 inches of cold batch recycled material or crushed stone/asphalt will be placed prior to providing a 2-inch thick top coat of asphalt resulting in a load bearing cap.

- AEC 32 - AEC 32 is an unlined trench with discolored soil within Building 20A adjacent to the east wall. TPHCs and metals were detected above NJDEPE cleanup criteria in this area.

  Remediation within this area will consist of soil excavation within the trench to an approximate depth of 1 foot, cold batch recycling, and capping. Once contaminated soil has been removed, the trench will be filled with bank sand or cold batch material to within 4 inches of the existing floor elevation. The trench will be capped with 4 inches of concrete to meet the existing floor elevation. Excess cold batch material will be used elsewhere on site.

- AEC 33 - AEC 33 is a dry well located near Building 25A. Non-contact cooling water was reportedly discharged to this dry well. TPHCs and BNs were detected above NJDEPE cleanup criteria in this area.

  Remediation will consist of soil excavation, cold batch recycling, and capping. The dry well will be filled, as necessary, with cold batch material or clean fill such as bank sand to within 9 inches of existing grade. Approximately 9 inches of soil will be excavated within the vicinity of the dry well and cold batch recycled. A minimum of 9 inches of cold batch recycled material or crushed stone/asphalt will be placed prior to providing a 2-inch thick top coat resulting in a load bearing cap.

- AEC 36 - AEC 36 is located west of Building 2A and in the location of a former drum storage area. BNs were detected above NJDEPE cleanup criteria in this area.

This area is currently paved. Remediation in this area will consist of placing a tack coat over existing pavement and adding a 2-inch thick top coat resulting in a load bearing cap.

- AEC 37 - AEC 37 is located north of Building 26 and is in the location of a former drum storage area. Lead was detected above NJDEPE cleanup criteria in this area.

  This area is currently paved. Remediation in this area will consist of placing a tack coat over existing pavement and adding a 2-inch thick top coat resulting in a load bearing cap.

- AEC 39 - AEC 39 is located north of Building 2C and is in the location of a former drum storage area. TPHCs and lead were detected above NJDEPE cleanup criteria in this area.

  This area is currently paved. Remediation of this area will consist of placing a tack coat over existing pavement and adding a 2-inch thick top coat resulting in a load bearing cap.

- AEC 40 - AEC 40 is located east of Building 24A and is located in the former location of a drum former storage area. TPHCs and lead were detected above NJDEPE cleanup criteria in this area.

  This area is currently paved. Remediation in this area will consist of placing a tack coat over existing pavement and adding a 2-inch thick top coat resulting in a load bearing cap.

3.4 Site Decommissioning Activities

Buildings 2A, 2D ,2C, 26B and 26C will be demolished in accordance with local requirements. All buildings being demolished will be removed to grade level. The concrete floors within these buildings will not be removed. Railroad tracks will be either left in-place, covered with asphalt, or removed. Approximately 50 percent of the tracks on the western portion of the site will be removed.

3.5 Site Restoration Activities

As discussed above, the entire site will be capped with asphalt pavement, some railroad tracks will be removed or covered, and several buildings will be demolished. No other site restoration activities are planned for this site.

3.6 Sequence of Remediation Activities

The following summarizes the sequence of proposed remediation activities:

1. Mobilization

2. Demolish structures as identified in Section 3.3.

3. Place soil erosion and sediment control devices as outlined in the site specific Soil Erosion and Sediment Control Plan.

4. Excavate soil, as necessary, to place pavement, facilitate drainage, and perform cold batch recycling (see Section 3.2).

6. Backfill, as necessary, to bring areas to grade (see Section 3.2).

5. Prepare existing asphalt and sub-grade for application of cold batch material and/or asphalt top coat.

7. Place cold batch recycled material where necessary and cap entire site with asphalt top coat.

8. Demobilization including removal of soil erosion and sediment control apparatus.

3.7 Construction Specification References

All work will be conducted utilizing standard construction practices. Where applicable the New Jersey Department of Transportation, Road Specifications will be used.

APPENDIX B

Stanley Tools August 1993 Samples

STANLEY TOOLS AUGUST 1993 SAMPLES

AEC	SAMPLE ID	DUP	MATRIX	COLLECTION METHOD	TOP DEPTH	BOTTOM DEPTH	COLLECTION DATE	TPHC	BN+15	VOC+15	PCB	PPM
8	447I-PT01-PE01		SOIL	BH	5.5	6.0	27-Aug-93			X		
8	447I-PT02-PE01		SOIL	BH	4.0	4.5	27-Aug-93			X		
8	447I-PT03-PE01		SOIL	BH	6.5	7.0	27-Aug-93			X		
8	447I-PT04-PE01		SOIL	BH	4.0	4.5	27-Aug-93			X		
8	447I-PT05-PE01		SOIL	BH	6.5	7.0	27-Aug-93			X		
8	447I-PT06-PE01		SOIL	BH	9.0	9.5	27-Aug-93			X		
12	447I-1203-SB01		SOIL	HSA	0.0	0.5	20-Aug-93	X				
12	447I-1203-SB02		SOIL	HSA	5.0	5.5	20-Aug-93	X				
12	447I-1203-SB03		SOIL	HSA	6.5	7.0	20-Aug-93	X	X			
12	447I-1204-SB01		SOIL	HSA	0.0	0.5	20-Aug-93	X				
12	447I-1204-SB02		SOIL	HSA	5.0	5.5	20-Aug-93	X				
12	447I-1204-SB03		SOIL	HSA	8.0	8.5	20-Aug-93	X				
16	447I-1604-SB02	Y	SOIL	HA	0.0	0.5	27-Aug-93				X	
16	447I-1604-SB22	Y	SOIL	HA	0.0	0.5	27-Aug-93				X	
17	447I-1702-SB01		SOIL	HA	1.0	1.5	27-Aug-93	X				
17	447I-1702-SB02		SOIL	HA	1.5	2.0	27-Aug-93			X		
18	447I-1802-SB02	Y	SOIL	HA	0.0	0.5	27-Aug-93		X			
18	447I-1802-SB22	Y	SOIL	HA	0.0	0.5	27-Aug-93		X			
25	447I-2503-SB01	Y	SOIL	HA	0.0	0.5	27-Aug-93	X	X			
25	447I-2503-SB11	Y	SOIL	HA	0.0	0.5	27-Aug-93	X				
25	447I-2503-SB02	Y	SOIL	HA	1.5	2.0	27-Aug-93			X		
25	447I-2503-SB22	Y	SOIL	HA	1.5	2.0	27-Aug-93			X		
WO TNK	447I-WT01-SB01		SOIL	HSA	6.5	7.0	26-Aug-93	X				
WO TNK	447I-WT02-SB01		SOIL	HSA	6.5	7.0	26-Aug-93	X				
WO TNK	447I-WT03-SB01		SOIL	HSA	6.5	7.0	26-Aug-93	X	X	X	X	X
WO TNK	447I-WT04-SB01		SOIL	HSA	6.5	7.0	26-Aug-93	X				
QA/QC	447I-WB01-0826		AQ	NA	NA	NA	26-Aug-93			X		
QA/QC	447I-WB01-0827		AQ	NA	NA	NA	27-Aug-93			X		

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Soil

ETC

DATA MANAGEMENT SUMMARY REPORT
(DM-OC) - All Parameters Tested, Selected Samples

DATE: 09/28/93
PAGE: 1

Chain of Custody Data Required for ETC Data Management Summary Report

ETC Sample No.	Company	Facility	Sample Point	Date
See Below	ENVIRON CORPORATION	ENV04471	See Below	

Parameters	Units	T203-SB01 930820 DBL700	T203-SB02 930820 DBL701	T203-SB03 930820 DBL702	T204-SB01 930820 DBL703	T204-SB02 930820 DBL704	T204-SB03 930820 DBL705		
Priority Poll. B/Ns GC/MS									
Acenaphthene ppb	ug/kg	-	-	< 144	-	-	-		
Acenaphthylene	ug/kg	-	-	< 300	-	-	-		
Anthracene	ug/kg	-	-	< 144	-	-	-		
Benzidine	ug/kg	-	-	< 3330	-	-	-		
Benzo(a)anthracene	ug/kg	-	-	100	-	-	-		
Benzo(a)pyrene	ug/kg	-	-	< 200	-	-	-		
Benzo(b)fluoranthene	ug/kg	-	-	< 364	-	-	-		
Benzo(ghi)perylene	ug/kg	-	-	< 300	-	-	-		
Benzo(k)fluoranthene	ug/kg	-	-	< 189	-	-	-		
bis(2-Chloroethoxy)methane	ug/kg	-	-	< 400	-	-	-		
bis(2-Chloroethyl) ether	ug/kg	-	-	< 400	-	-	-		
bis(2-Chloroisopropyl)ether	ug/kg	-	-	< 432	-	-	-		
bis(2-Ethylhexyl)phthalate	ug/kg	-	-	< 758	-	-	-		
4-Bromophenyl phenyl ether	ug/kg	-	-	< 100	-	-	-		
Butyl benzyl phthalate	ug/kg	-	-	< 800	-	-	-		
2-Chloronaphthalene	ug/kg	-	-	< 144	-	-	-		
4-Chlorophenyl phenyl ether	ug/kg	-	-	< 318	-	-	-		
Chrysene	ug/kg	-	-	< 189	-	-	-		
Dibenzo(a,h)anthracene	ug/kg	-	-	< 200	-	-	-		
1,2-Dichlorobenzene	ug/kg	-	-	< 100	-	-	-		
1,3-Dichlorobenzene	ug/kg	-	-	< 100	-	-	-		
1,4-Dichlorobenzene	ug/kg	-	-	< 300	-	-	-		
3,3'-Dichlorobenzidine	ug/kg	-	-	< 1000	-	-	-		
Diethyl phthalate	ug/kg	-	-	< 758	-	-	-		
Dimethyl phthalate	ug/kg	-	-	< 379	-	-	-		
Di-n-butyl phthalate	ug/kg	-	-	< 758	-	-	-		
2,4-Dinitrotoluene	ug/kg	-	-	< 432	-	-	-		
2,6-Dinitrotoluene	ug/kg	-	-	< 144	-	-	-		
Di-n-octyl phthalate	ug/kg	-	-	< 800	-	-	-		
1,2-Diphenylhydrazine	ug/kg	-	-	< 800	-	-	-		
Fluoranthene	ug/kg	-	-	140	-	-	-		
Fluorene	ug/kg	-	-	2660	-	-	-		
Hexachlorobenzene	ug/kg	-	-	< 100	-	-	-		
Hexachlorobutadiene	ug/kg	-	-	< 70	-	-	-		

Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected '-'=Parameter not tested

1.7

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ETC

DATA MANAGEMENT SUMMARY REPORT
(DM-OC) - All Parameters Tested, Selected Samples

DATE: 09/28/93
PAGE: 2

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	ENVIRON CORPORATION	ENV04471	See Below	
ETC Sample No.	*Company*	*Facility*	*Sample Point*	*Date*

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	Units	T203-SB01 930820 DBL700	T203-SB02 930820 DBL701	T203-SB03 930820 DBL702	T204-SB01 930820 DBL703	T204-SB02 930820 DBL704	T204-SB03 930820 DBL705		
Hexachlorocyclopentadiene	ug/kg	-	-	< 800	-	-	-		
Hexachloroethane	ug/kg	-	-	< 100	-	-	-		
Indeno(1,2,3-c,d)pyrene	ug/kg	-	-	< 400	-	-	-		
Isophorone	ug/kg	-	-	68000	-	-	-		
Naphthalene	ug/kg	-	-	< 100	-	-	-		
Nitrobenzene	ug/kg	-	-	< 144	-	-	-		
N-Nitrosodimethylamine	ug/kg	-	-	< 800	-	-	-		
N-Nitrosodi-n-propylamine	ug/kg	-	-	< 800	-	-	-		
N-Nitrosodiphenylamine	ug/kg	-	-	< 100	-	-	-		
Phenanthrene	ug/kg	-	-	2780	-	-	-		
Pyrene	ug/kg	-	-	< 144	-	-	-		
1,2,4-Trichlorobenzene	ug/kg	-	-	< 100	-	-	-		
Miscellaneous Parameters									
Petroleum Hydrocarbons (IR)	mg/kg	922	101	5090	537	60.8	112		

17.2

Footnotes: BMDL=Below Method Detection Limit   ND=Parameter not detected   '-'=Parameter not tested

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— ETC

DATA MANAGEMENT SUMMARY REPORT
(DM-OC) - All Parameters Tested, Selected Samples

DATE: 09/28/93
PAGE: 1

Chain of Custody Data Required for ETC Data Management Summary Report

See Below	ENVIRON CORPORATION	02-04471	See Below	
ETC Sample No.	*Company*	*Facility*	*Sample Point*	*Date*

Parameters	*Units*	WT01-SB01 930826 DB0100	WT01-SB01 930826 DB0100	WT03-SB01 930826 DB0102	WT04-SB01 930826 DB0103				
Priority Poll. Volatiles GC/MS									
Acrolein	ug/kg	-	-	< 100	-				
Acrylonitrile	ug/kg	-	-	< 100	-				
Benzene	ug/kg	-	-	< 5	-				
bis(Chloromethyl)ether	ug/kg	-	-	< 10	-				
Bromoform	ug/kg	-	-	< 5	-				
Carbon tetrachloride	ug/kg	-	-	< 3	-				
Chlorobenzene	ug/kg	-	-	< 7	-				
Chlorodibromomethane	ug/kg	-	-	< 3	-				
Chloroethane	ug/kg	-	-	< 10	-				
2-Chloroethylvinyl ether	ug/kg	-	-	< 10	-				
Chloroform	ug/kg	-	-	< 2	-				
Dichlorobromomethane	ug/kg	-	-	< 2	-				
Dichlorodifluoromethane	ug/kg	-	-	< 10	-				
1,1-Dichloroethane	ug/kg	-	-	< 5	-				
1,2-Dichloroethane	ug/kg	-	-	< 3	-				
1,1-Dichloroethylene	ug/kg	-	-	< 3	-				
1,2-Dichloropropane	ug/kg	-	-	< 7	-				
cis-1,3-Dichloropropylene	ug/kg	-	-	< 5	-				
Ethylbenzene	ug/kg	-	-	< 8	-				
Methyl bromide	ug/kg	-	-	< 10	-				
Methyl chloride	ug/kg	-	-	< 10	-				
Methylene chloride	ug/kg	-	-	13.3	-				
1,1,2,2-Tetrachloroethane	ug/kg	-	-	< 7	-				
Tetrachloroethylene	ug/kg	-	-	< 4	-				
Toluene	ug/kg	-	-	< 7	-				
1,2-Trans-dichloroethylene	ug/kg	-	-	< 2	-				
1,1,1-Trichloroethane	ug/kg	-	-	< 4	-				
1,1,2-Trichloroethane	ug/kg	-	-	< 5	-				
Trichloroethylene	ug/kg	-	-	< 2	-				
Trichlorofluoromethane	ug/kg	-	-	< 10	-				
Vinyl chloride	ug/kg	-	-	< 10	-				
trans-1,3-Dichloropropylene	ug/kg	-	-	< 10	-				

Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected '-'=Parameter not tested

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ETC

DATA MANAGEMENT SUMMARY REPORT
(DM-0C) - All Parameters Tested, Selected Samples

DATE: 09/28/93
PAGE: 2

Chain of Custody Data Required for ETC Data Management Summary Report

ETC Sample No.	Company	Facility	Sample Point	Date
See Below	ENVIRON CORPORATION	02-04471	See Below	

Parameters	Units	WI01-SB01 930826 DB0100	WI01-SB01 930826 DB0100	WI03-SB01 930826 DB0102	WI04-SB01 930826 DB0103				
Priority Poll. B/Ns GC/MS									
Acenaphthene	ug/kg	-	-	< 100	-				
Acenaphthylene	ug/kg	-	-	< 300	-				
Anthracene	ug/kg	-	-	< 100	-				
Benzidine	ug/kg	-	-	< 3000	-				
Benzo(a)anthracene	ug/kg	-	-	< 600	-				
Benzo(a)pyrene	ug/kg	-	-	< 200	-				
Benzo(b)fluoranthene	ug/kg	-	-	< 300	-				
Benzo(ghi)perylene	ug/kg	-	-	< 300	-				
Benzo(k)fluoranthene	ug/kg	-	-	< 200	-				
bis(2-Chloroethoxy)methane	ug/kg	-	-	< 400	-				
bis(2-Chloroethyl) ether	ug/kg	-	-	< 400	-				
bis(2-Chloroisopropyl)ether	ug/kg	-	-	< 400	-				
bis(2-Ethylhexyl)phthalate	ug/kg	-	-	25100	-				
4-Bromophenyl phenyl ether	ug/kg	-	-	< 100	-				
Butyl benzyl phthalate	ug/kg	-	-	< 700	-				
2-Chloronaphthalene	ug/kg	-	-	< 100	-				
4-Chlorophenyl phenyl ether	ug/kg	-	-	< 300	-				
Chrysene	ug/kg	-	-	< 200	-				
Dibenzo(a,h)anthracene	ug/kg	-	-	< 200	-				
1,2-Dichlorobenzene	ug/kg	-	-	< 100	-				
1,3-Dichlorobenzene	ug/kg	-	-	< 100	-				
1,4-Dichlorobenzene	ug/kg	-	-	< 300	-				
3,3'-Dichlorobenzidine	ug/kg	-	-	< 1000	-				
Diethyl phthalate	ug/kg	-	-	< 700	-				
Dimethyl phthalate	ug/kg	-	-	< 357	-				
Di-n-butyl phthalate	ug/kg	-	-	110	-				
2,4-Dinitrotoluene	ug/kg	-	-	< 400	-				
2,6-Dinitrotoluene	ug/kg	-	-	< 100	-				
Di-n-octyl phthalate	ug/kg	-	-	806	-				
1,2-Diphenylhydrazine	ug/kg	-	-	< 700	-				
Fluoranthene	ug/kg	-	-	< 200	-				
Fluorene	ug/kg	-	-	< 100	-				
Hexachlorobenzene	ug/kg	-	-	< 100	-				
Hexachlorobutadiene	ug/kg	-	-	< 60	-				

Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected '-'=Parameter not tested

24.2

— ETC —

DATA MANAGEMENT SUMMARY REPORT
(DM-OC) - All Parameters Tested, Selected Samples

Chain of Custody Data Required for ETC Data Management Summary Report				
See Below	ENVIRON CORPORATION	02-04471	See Below	
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Units	WT01-SB01 930826 DB0100	WT01-SB01 930826 DB0100	WT03-SB01 930826 DB0102	WT04-SB01 930826 DB0103				
Hexachlorocyclopentadiene	ug/kg	-	-	< 700	-				
Hexachloroethane	ug/kg	-	-	< 100	-				
Indeno(1,2,3-c,d)pyrene	ug/kg	-	-	< 300	-				
Isophorone	ug/kg	-	-	12200	-				
Naphthalene	ug/kg	-	-	< 100	-				
Nitrobenzene	ug/kg	-	-	< 136	-				
N-Nitrosodimethylamine	ug/kg	-	-	< 700	-				
N-Nitrosodi-n-propylamine	ug/kg	-	-	< 714	-				
N-Nitrosodiphenylamine	ug/kg	-	-	< 100	-				
Phenanthrene	ug/kg	-	-	< 400	-				
Pyrene	ug/kg	-	-	< 100	-				
1,2,4-Trichlorobenzene	ug/kg	-	-	< 100	-				
Metals Analysis Data									
Antimony	ug/kg	-	-	< 6500	-				
Arsenic	ug/kg	-	-	1200	-				
Beryllium	ug/kg	-	-	300	-				
Cadmium	ug/kg	-	-	< 430	-				
Chromium	ug/kg	-	-	9000	-				
Copper	ug/kg	-	-	8000	-				
Lead	ug/kg	-	-	7200	-				
Mercury	ug/kg	-	-	57	-				
Nickel	ug/kg	-	-	7800	-				
Selenium	ug/kg	-	-	< 540	-				
Silver	ug/kg	-	-	< 1100	-				
Thallium	ug/kg	-	-	< 1100	-				
Zinc	ug/kg	-	-	50000	-				
Aroclors by GC									
Aroclor 1242	ug/kg	-	-	< 52.7	-				
Aroclor 1254	ug/kg	-	-	< 105	-				
Aroclor 1260	ug/kg	-	-	< 105	-				
Aroclor 1248	ug/kg	-	-	< 52.7	-				
Aroclor 1232	ug/kg	-	-	< 52.7	-				
Aroclor 1221	ug/kg	-	-	< 52.7	-				

Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected '-'=Parameter not tested

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DATA MANAGEMENT SUMMARY REPORT
(DM-OC) - All Parameters Tested, Selected Samples

Chain of Custody Data Required for ETC Data Management Summary Report

ETC Sample No.	Company	Facility	Sample Point	Date
See Below	ENVIRON CORPORATION	02-04471	See Below	

Parameters	Units	WI01-SB01 930826 DBD100	WI01-SB01 930826 DBD108	WI03-SB01 930826 DBD102	WI04-SB01 930826 DBD103				
Aroclor 1016	ug/kg	-	-	< 52.7	-				
Miscellaneous Parameters	(ppm)					10,000		10,000	
Petrolaum Hydrocarbons (IR)	mg/kg	29.9	29.9	54.8	20.4				
Petrolaum Hydrocarbons (IR)	mg/kg	29.9	29.9	-	-				

Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected '-'=Parameter not tested

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DATA MANAGEMENT SUMMARY REPORT
(DM-OC) - All Parameters Tested, Selected Samples

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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	ENVIRON CORPORATION	ENV0447I	See Below	
ETC Sample No.	*Company*	*Facility*	*Sample Point*	*Date*

Sample Points, Sampling Dates, and ETC Sample No.'s

Parameters	*Units*	T702-SB01 930827 DBP300	2503-SB01 930827 DBP301	2503-SB11 930827 DBP302	2503-SB22 930827 DBP303	PT01-PE01 930827 DBP304	PT02-PE01 930827 DBP305	PT03-PE01 930827 DBP306	PT04-PE01 930827 DBP30
Priority Poll. Volatiles GC/MS									
Acrolein	ug/kg	-	-	-	< 100	< 100	< 100	< 100	< 100
Acrylonitrile	ug/kg	-	-	-	< 100	< 100	< 100	< 100	< 100
Benzene	ug/kg	-	-	-	< 5	< 5	< 5	< 5	< 5
bis(Chloromethyl)ether	ug/kg	-	-	-	< 10	< 10	< 10	< 10	< 10
Bromoform	ug/kg	-	-	-	< 6	< 5	< 5	< 5	< 5
Carbon tetrachloride	ug/kg	-	-	-	< 3	< 3	< 3	< 3	< 3
Chlorobenzene	ug/kg	-	-	-	< 7	< 7	< 7	< 7	< 7
Chlorodibromomethane	ug/kg	-	-	-	< 4	< 3	< 3	< 4	< 4
Chloroethane	ug/kg	-	-	-	< 10	< 10	< 10	< 10	< 10
2-Chloroethylvinyl ether	ug/kg	-	-	-	< 10	< 10	< 10	< 10	< 10
Chloroform	ug/kg	-	-	-	< 2	< 2	< 2	< 2	< 2
Dichlorobromomethane	ug/kg	-	-	-	< 3	< 2	< 2	< 3	< 3
Dichlorodifluoromethane	ug/kg	-	-	-	< 10	< 10	< 10	< 10	< 10
1,1-Dichloroethane	ug/kg	-	-	-	< 6	< 5	< 5	< 5	< 5
1,2-Dichloroethane	ug/kg	-	-	-	< 3	< 3	< 3	< 3	< 3
1,1-Dichloroethylene	ug/kg	-	-	-	< 3	< 3	< 3	< 3	< 3
1,2-Dichloropropane	ug/kg	-	-	-	< 7	< 7	< 7	< 7	< 7
cis-1,3-Dichloropropylene	ug/kg	-	-	-	< 6	< 6	< 5	< 6	< 6
Ethylbenzene	ug/kg	-	-	-	< 9	< 8	< 8	< 8	< 8
Methyl bromide	ug/kg	-	-	-	< 10	< 10	< 10	< 10	< 10
Methyl chloride	ug/kg	-	-	-	< 10	< 10	< 10	< 10	< 10
Methylene chloride	ug/kg	-	-	-	17.7	15.8	46.1	65.9	67.4
1,1,2,2-Tetrachloroethane	ug/kg	-	-	-	< 8	< 8	< 7	< 8	< 8
Tetrachloroethylene	ug/kg	-	-	-	< 5	< 5	3.9	< 5	< 5
Toluene	ug/kg	-	-	-	< 7	3.2	2.2	< 7	4.8
1,2-Trans-dichloroethylene	ug/kg	-	-	-	< 2	< 2	< 2	< 2	< 2
1,1,1-Trichloroethane	ug/kg	-	-	-	< 5	< 4	< 4	< 4	< 4
1,1,2-Trichloroethane	ug/kg	-	-	-	< 6	< 6	< 5	< 6	< 6
Trichloroethylene	ug/kg	-	-	-	< 2	< 2	< 2	< 2	< 2
Trichlorofluoromethane	ug/kg	-	-	-	< 10	< 10	< 10	< 10	< 10
Vinyl chloride	ug/kg	-	-	-	< 10	< 10	< 10	< 10	< 10
trans-1,3-Dichloropropylene	ug/kg	-	-	-	< 10	< 10	< 10	< 10	< 10

Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected '-'=Parameter not tested

ETC

DATA MANAGEMENT SUMMARY REPORT
(DM-OC) - All Parameters Tested, Selected Samples

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Chain of Custody Data Required for ETC Data Management Summary Report

ETC Sample No.	Company	Facility	Sample Point	Date
See Below	ENVIRON CORPORATION	ENV0447I	See Below	

Parameters	Units	1702-SB01 930827 DBP300	2503-SB01 930827 DBP301	2503-SB11 930827 DBP302	2503-SB22 930827 DBP303	PT01-PE01 930827 DBP304	PT02-PE01 930827 DBP305	PT03-PE01 930827 DBP306	PT04-PE01 930827 DBP307
Priority Poll. B/Ns GC/MS									
Acenaphthene	ug/kg	-	2360	-	-	-	-	-	-
Acenaphthylene	ug/kg	-	1460	-	-	-	-	-	-
Anthracene	ug/kg	-	7270	-	-	-	-	-	-
Benzidine	ug/kg	-	< 2930	-	-	-	-	-	-
Benzo(a)anthracene	ug/kg	-	32700	-	-	-	-	-	-
Benzo(a)pyrene	ug/kg	-	27400	-	-	-	-	-	-
Benzo(b)fluoranthene	ug/kg	-	30900	-	-	-	-	-	-
Benzo(ghi)perylene	ug/kg	-	20500	-	-	-	-	-	-
Benzo(k)fluoranthene	ug/kg	-	< 167	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	ug/kg	-	< 400	-	-	-	-	-	-
bis(2-Chloroethyl) ether	ug/kg	-	< 400	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	ug/kg	-	< 380	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	ug/kg	-	6480	-	-	-	-	-	-
4-Bromophenyl phenyl ether	ug/kg	-	< 100	-	-	-	-	-	-
Butyl benzyl phthalate	ug/kg	-	< 700	-	-	-	-	-	-
2-Chloronaphthalene	ug/kg	-	< 100	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	ug/kg	-	< 300	-	-	-	-	-	-
Chrysene	ug/kg	-	28700	-	-	-	-	-	-
Dibenzo(a,h)anthracene	ug/kg	-	5670	-	-	-	-	-	-
1,2-Dichlorobenzene	ug/kg	-	< 100	-	-	-	-	-	-
1,3-Dichlorobenzene	ug/kg	-	< 100	-	-	-	-	-	-
1,4-Dichlorobenzene	ug/kg	-	< 300	-	-	-	-	-	-
3,3'-Dichlorobenzidine	ug/kg	-	< 1000	-	-	-	-	-	-
Diethyl phthalate	ug/kg	-	< 700	-	-	-	-	-	-
Dimethyl phthalate	ug/kg	-	< 333	-	-	-	-	-	-
Di-n-butyl phthalate	ug/kg	-	160	-	-	-	-	-	-
2,4-Dinitrotoluene	ug/kg	-	< 400	-	-	-	-	-	-
2,6-Dinitrotoluene	ug/kg	-	< 100	-	-	-	-	-	-
Di-n-octyl phthalate	ug/kg	-	< 667	-	-	-	-	-	-
1,2-Diphenylhydrazine	ug/kg	-	< 700	-	-	-	-	-	-
Fluoranthene	ug/kg	-	49700	-	-	-	-	-	-
Fluorene	ug/kg	-	3210	-	-	-	-	-	-
Hexachlorobenzene	ug/kg	-	< 100	-	-	-	-	-	-
Hexachlorobutadiene	ug/kg	-	< 60	-	-	-	-	-	-

Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected '-'=Parameter not tested

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DATA MANAGEMENT SUMMARY REPORT
(DM-OC) - All Parameters Tested, Selected Samples

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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	ENVIRON CORPORATION	ENV0447I	See Below	
ETC Sample No.	*Company*	*Facility*	*Sample Point*	*Date*

Parameters	*Units*	1702-SB01 930827 DBP300	2503-SB01 930827 DBP301	2503-SB11 930827 DBP302	2503-SB22 930827 DBP303	PT01-PE01 930827 DBP304	PT02-PE01 930827 DBP305	PT03-PE01 930827 DBP306	PT04-PE01 930827 DBP307
Hexachlorocyclopentadiene	ug/kg	-	< 700	-	-	-	-	-	-
Hexachloroethane	ug/kg	-	< 100	-	-	-	-	-	-
Indeno(1,2,3-c,d)pyrene	ug/kg	-	25000	-	-	-	-	-	-
Isophorone	ug/kg	-	35200	-	-	-	-	-	-
Naphthalene	ug/kg	-	1800	-	-	-	-	-	-
Nitrobenzene	ug/kg	-	< 127	-	-	-	-	-	-
N-Nitrosodimethylamine	ug/kg	-	< 700	-	-	-	-	-	-
N-Nitrosodi-n-propylamine	ug/kg	-	< 700	-	-	-	-	-	-
N-Nitrosodiphenylamine	ug/kg	-	< 100	-	-	-	-	-	-
Phenanthrene	ug/kg	-	33400	-	-	-	-	-	-
Pyrene	ug/kg	-	47100	-	-	-	-	-	-
1,2,4-Trichlorobenzene	ug/kg	-	< 100	-	-	-	-	-	-
Aroclors by GC									
Aroclor 1242	ug/kg	-	-	-	-	-	-	-	-
Aroclor 1254	ug/kg	-	-	-	-	-	-	-	-
Aroclor 1260	ug/kg	-	-	-	-	-	-	-	-
Aroclor 1248	ug/kg	-	-	-	-	-	-	-	-
Aroclor 1232	ug/kg	-	-	-	-	-	-	-	-
Aroclor 1221	ug/kg	-	-	-	-	-	-	-	-
Aroclor 1016	ug/kg	-	-	-	-	-	-	-	-
Miscellaneous Parameters									
Petroleum Hydrocarbons (IR)	mg/kg	295	1690	1470	-	-	-	-	-

Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected '-'=Parameter not tested

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DATA MANAGEMENT SUMMARY REPORT
(DM-OC) - All Parameters Tested, Selected Samples

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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	ENVIRON CORPORATION	ENV0447I	See Below	
ETC Sample No.	*Company*	*Facility*	*Sample Point*	*Date*

Parameters	*Units*	PT05-PE01 930827 DBP308	PT06-PE01 930827 DBP309	1702-SB02 930827 DBP311	2503-SB02 930827 DBP312	1802-SB02 930827 DBP313	1802-SB22 930827 DBP314	1604-SB02 930827 DBP315	1604-SB22 930827 DBP316
		Sample Points, Sampling Dates, and ETC Sample No.'s							
Priority Poll. Volatiles GC/MS									
Acrolein	ug/kg	< 100	< 100	< 100	< 100	-	-	-	-
Acrylonitrile	ug/kg	< 100	< 100	< 100	< 100	-	-	-	-
Benzene	ug/kg	< 5	< 5	< 5	< 5	-	-	-	-
bis(Chloromethyl)ether	ug/kg	< 10	< 10	< 10	< 10	-	-	-	-
Bromoform	ug/kg	< 5	< 5	< 5	< 6	-	-	-	-
Carbon tetrachloride	ug/kg	< 3	< 3	< 3	< 3	-	-	-	-
Chlorobenzene	ug/kg	< 7	< 7	< 7	< 7	-	-	-	-
Chlorodibromomethane	ug/kg	< 4	< 4	< 4	< 4	-	-	-	-
Chloroethane	ug/kg	< 10	< 10	< 10	< 10	-	-	-	-
2-Chloroethylvinyl ether	ug/kg	< 10	< 10	< 10	< 10	-	-	-	-
Chloroform	ug/kg	< 2	< 2	< 2	< 2	-	-	-	-
Dichlorobromomethane	ug/kg	< 3	< 3	< 3	< 3	-	-	-	-
Dichlorodifluoromethane	ug/kg	< 10	< 10	< 10	< 10	-	-	-	-
1,1-Dichloroethane	ug/kg	< 5	< 5	< 5	< 6	-	-	-	-
1,2-Dichloroethane	ug/kg	< 3	< 3	< 3	< 3	-	-	-	-
1,1-Dichloroethylene	ug/kg	< 3	< 3	< 3	< 3	-	-	-	-
1,2-Dichloropropane	ug/kg	< 7	< 7	< 7	< 7	-	-	-	-
cis-1,3-Dichloropropylene	ug/kg	< 6	< 6	< 6	< 6	-	-	-	-
Ethylbenzene	ug/kg	< 8	< 8	< 8	< 8	-	-	-	-
Methyl bromide	ug/kg	< 10	< 10	< 10	< 10	-	-	-	-
Methyl chloride	ug/kg	< 10	< 10	< 10	< 10	-	-	-	-
Methylene chloride	ug/kg	59.3	66.7	51.5	32.0	-	-	-	-
1,1,2,2-Tetrachloroethane	ug/kg	< 8	< 8	< 8	< 8	-	-	-	-
Tetrachloroethylene	ug/kg	< 5	< 5	< 5	< 5	-	-	-	-
Toluene	ug/kg	< 7	< 7	< 7	< 7	-	-	-	-
1,2-Trans-dichloroethylene	ug/kg	< 2	< 2	< 2	< 2	-	-	-	-
1,1,1-Trichloroethane	ug/kg	< 4	< 4	< 4	< 4	-	-	-	-
1,1,2-Trichloroethane	ug/kg	< 6	< 6	< 6	< 6	-	-	-	-
Trichloroethylene	ug/kg	< 2	< 2	< 2	< 2	-	-	-	-
Trichlorofluoromethane	ug/kg	< 10	< 10	< 10	< 10	-	-	-	-
Vinyl chloride	ug/kg	< 10	< 10	< 10	< 10	-	-	-	-
trans-1,3-Dichloropropylene	ug/kg	< 10	< 10	< 10	< 10	-	-	-	-

Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected '-'=Parameter not tested

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DATA MANAGEMENT SUMMARY REPORT
(DM-OC) - All Parameters Tested, Selected Samples

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Chain of Custody Data Required for ETC Data Management Summary Report

See Below	ENVIRON CORPORATION	ENV0447I	See Below	
ETC Sample No.	Company	Facility	Sample Point	Date

Parameters	Units	PT05-PE01 930827 DBP308	PT06-PE01 930827 DBP309	1702-SB02 930827 DBP311	2503-SB02 930827 DBP312	1802-SB02 930827 DBP313	1802-SB22 930827 DBP314	1604-SB02 930827 DBP315	1604-SB22 930827 DBP316
Priority Poll. B/Ns GC/MS									
Acenaphthene	ug/kg	-	-	-	-	< 100	86	-	-
Acenaphthylene	ug/kg	-	-	-	-	< 300	71	-	-
Anthracene	ug/kg	-	-	-	-	174	447	-	-
Benzidine	ug/kg	-	-	-	-	< 3360	< 3360	-	-
Benzo(a)anthracene	ug/kg	-	-	-	-	1550	2130	-	-
Benzo(a)pyrene	ug/kg	-	-	-	-	1450	1820	-	-
Benzo(b)fluoranthene	ug/kg	-	-	-	-	2670	3180	-	-
Benzo(ghi)perylene	ug/kg	-	-	-	-	1750	1640	-	-
Benzo(k)fluoranthene	ug/kg	-	-	-	-	< 191	< 191	-	-
bis(2-Chloroethoxy)methane	ug/kg	-	-	-	-	< 400	< 400	-	-
bis(2-Chloroethyl) ether	ug/kg	-	-	-	-	< 400	< 400	-	-
bis(2-Chloroisopropyl)ether	ug/kg	-	-	-	-	< 400	< 400	-	-
bis(2-Ethylhexyl)phthalate	ug/kg	-	-	-	-	< 763	140	-	-
4-Bromophenyl phenyl ether	ug/kg	-	-	-	-	< 100	< 100	-	-
Butyl benzyl phthalate	ug/kg	-	-	-	-	< 800	< 763	-	-
2-Chloronaphthalene	ug/kg	-	-	-	-	< 100	< 100	-	-
4-Chlorophenyl phenyl ether	ug/kg	-	-	-	-	< 300	< 300	-	-
Chrysene	ug/kg	-	-	-	-	2070	2540	-	-
Dibenzo(a,h)anthracene	ug/kg	-	-	-	-	410	555	-	-
1,2-Dichlorobenzene	ug/kg	-	-	-	-	< 100	< 100	-	-
1,3-Dichlorobenzene	ug/kg	-	-	-	-	< 100	< 100	-	-
1,4-Dichlorobenzene	ug/kg	-	-	-	-	< 300	< 300	-	-
3,3'-Dichlorobenzidine	ug/kg	-	-	-	-	< 1000	< 1000	-	-
Diethyl phthalate	ug/kg	-	-	-	-	< 800	< 800	-	-
Dimethyl phthalate	ug/kg	-	-	-	-	< 382	< 382	-	-
Di-n-butyl phthalate	ug/kg	-	-	-	-	< 763	96	-	-
2,4-Dinitrotoluene	ug/kg	-	-	-	-	< 400	< 400	-	-
2,6-Dinitrotoluene	ug/kg	-	-	-	-	< 100	< 100	-	-
Di-n-octyl phthalate	ug/kg	-	-	-	-	< 763	< 763	-	-
1,2-Diphenylhydrazine	ug/kg	-	-	-	-	< 800	< 800	-	-
Fluoranthene	ug/kg	-	-	-	-	2880	4350	-	-
Fluorene	ug/kg	-	-	-	-	< 100	146	-	-
Hexachlorobenzene	ug/kg	-	-	-	-	< 100	< 100	-	-
Hexachlorobutadiene	ug/kg	-	-	-	-	< 70	< 70	-	-

Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected '-'=Parameter not tested

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DATA MANAGEMENT SUMMARY REPORT
(DM-OC) - All Parameters Tested, Selected Samples

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Chain of Custody Data Required for ETC Data Management Summary Report

ETC Sample No.	Company	Facility	Sample Point	Date
See Below	ENVIRON CORPORATION	ENV0447I	See Below	

Parameters	Units	PT05-PE01 930827 DBP308	PT06-PE01 930827 DBP309	1702-SB02 930827 DBP311	2503-SB02 930827 DBP312	1802-SB02 930827 DBP313	1802-SB22 930827 DBP314	1604-SB02 930827 DBP315	1604-SB22 930827 DBP316
Hexachlorocyclopentadiene	ug/kg	-	-	-	-	< 800	< 800	-	-
Hexachloroethane	ug/kg	-	-	-	-	< 100	< 100	-	-
Indeno(1,2,3-c,d)pyrene	ug/kg	-	-	-	-	1490	1500	-	-
Isophorone	ug/kg	-	-	-	-	36900	20600	-	-
Naphthalene	ug/kg	-	-	-	-	245	263	-	-
Nitrobenzene	ug/kg	-	-	-	-	< 145	< 145	-	-
N-Nitrosodimethylamine	ug/kg	-	-	-	-	< 800	< 800	-	-
N-Nitrosodi-n-propylamine	ug/kg	-	-	-	-	< 800	< 800	-	-
N-Nitrosodiphenylamine	ug/kg	-	-	-	-	< 100	< 100	-	-
Phenanthrene	ug/kg	-	-	-	-	1260	2480	-	-
Pyrene	ug/kg	-	-	-	-	2970	4090	-	-
1,2,4-Trichlorobenzene	ug/kg	-	-	-	-	< 100	< 100	-	-
Aroclors by GC									
Aroclor 1242	ug/kg	-	-	-	-	-	-	< 55.2	< 53.9
Aroclor 1254	ug/kg	-	-	-	-	-	-	< 110	< 108
Aroclor 1260	ug/kg	-	-	-	-	-	-	< 110	< 108
Aroclor 1248	ug/kg	-	-	-	-	-	-	< 55.2	< 53.9
Aroclor 1232	ug/kg	-	-	-	-	-	-	< 55.2	< 53.9
Aroclor 1221	ug/kg	-	-	-	-	-	-	< 55.2	< 53.9
Aroclor 1016	ug/kg	-	-	-	-	-	-	< 55.2	< 53.9
Miscellaneous Parameters									
Petroleum Hydrocarbons (IR)	mg/kg	-	-	-	-	-	-	-	-

Soil

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Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected '-'=Parameter not tested

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DATA MANAGEMENT SUMMARY REPORT
(DM-0C) - All Parameters Tested, Selected Samples

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Chain of Custody Data Required for ETC Data Management Summary Report

ETC Sample No.	Company	Facility	Sample Point	Date
See Below	ENVIRON CORPORATION	02-04471	See Below	

Parameters	Units	WB01-0826 930826 DB0104							
Priority Poll. Volatiles GC/MS									
Acrolein	ug/l	< 100							
Acrylonitrile	ug/l	< 100							
Benzene	ug/l	< 4							
bis(Chloromethyl)ether	ug/l	< 10							
Bromoform	ug/l	< 5							
Carbon tetrachloride	ug/l	< 3							
Chlorobenzene	ug/l	< 6							
Chlorodibromomethane	ug/l	< 3							
Chloroethane	ug/l	< 10							
2-Chloroethylvinyl ether	ug/l	< 10							
Chloroform	ug/l	< 2							
Dichlorobromomethane	ug/l	< 2							
Dichlorodifluoromethane	ug/l	< 10							
1,1-Dichloroethane	ug/l	< 5							
1,2-Dichloroethane	ug/l	< 3							
1,1-Dichloroethylene	ug/l	< 3							
1,2-Dichloropropane	ug/l	< 6							
cis-1,3-Dichloropropylene	ug/l	< 5							
Ethylbenzene	ug/l	< 7							
Methyl bromide	ug/l	< 10							
Methyl chloride	ug/l	< 10							
Methylene chloride	ug/l	< 3							
1,1,2,2-Tetrachloroethane	ug/l	< 7							
Tetrachloroethylene	ug/l	< 4							
Toluene	ug/l	< 6							
1,2-Trans-dichloroethylene	ug/l	< 2							
1,1,1-Trichloroethane	ug/l	< 4							
1,1,2-Trichloroethane	ug/l	< 5							
Trichloroethylene	ug/l	< 2							
Trichlorofluoromethane	ug/l	< 10							
Vinyl chloride	ug/l	< 10							
trans-1,3-Dichloropropylene	ug/l	< 10							

Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected '-'=Parameter not tested

24.5

87763032[4]

ETC

DATA MANAGEMENT SUMMARY REPORT
(DM-OC) - All Parameters Tested, Selected Samples

DATE 09/28/93
PAGE 1

Chain of Custody Data Required for ETC Data Management Summary Report

ETC Sample No.	Company	Facility	Sample Point	Date
See Below	ENVIRON CORPORATION	ENV0477I	See Below	

Parameters	Units	Sample Points, Sampling Dates, and ETC Sample No.'s: WB01-0827 930827 DBP310
Priority Poll. Volatiles GC/MS		
Acrolein	ug/l	< 100
Acrylonitrile	ug/l	< 100
Benzene	ug/l	< 4
bis(Chloromethyl)ether	ug/l	< 10
Bromoform	ug/l	< 5
Carbon tetrachloride	ug/l	< 3
Chlorobenzene	ug/l	< 6
Chlorodibromomethane	ug/l	< 3
Chloroethane	ug/l	< 10
2-Chloroethylvinyl ether	ug/l	< 10
Chloroform	ug/l	< 2
Dichlorobromomethane	ug/l	< 2
Dichlorodifluoromethane	ug/l	< 10
1,1-Dichloroethane	ug/l	< 5
1,2-Dichloroethane	ug/l	< 3
1,1-Dichloroethylene	ug/l	< 3
1,2-Dichloropropane	ug/l	< 6
cis-1,3-Dichloropropylene	ug/l	< 5
Ethylbenzene	ug/l	< 7
Methyl bromide	ug/l	< 10
Methyl chloride	ug/l	< 10
Methylene chloride	ug/l	< 3
1,1,2,2-Tetrachloroethane	ug/l	< 7
Tetrachloroethylene	ug/l	< 4
Toluene	ug/l	< 6
1,2-Trans-dichloroethylene	ug/l	< 2
1,1,1-Trichloroethane	ug/l	< 4
1,1,2-Trichloroethane	ug/l	< 5
Trichloroethylene	ug/l	< 2
Trichlorofluoromethane	ug/l	< 10
Vinyl chloride	ug/l	< 10
trans-1,3-Dichloropropylene	ug/l	< 10

Footnotes: BMDL=Below Method Detection Limit ND=Parameter not detected '-'=Parameter not tested

877630325

From
Sherwin Williams
Report

gas plant directly east of the site. A 1931 Sanborn map depicts two buildings on-site known as Goheen Corporations and the facility was used for paint manufacturing. The 1950 Sanborn map indicates the same structures plus the addition of two more buildings and indicates that the facility was known as Vita-Var Corporation, also used for paint manufacturing. The structures depicted on the 1950 Sanborn map are generally consistent with the current site layout. There is no change in site conditions on the 1952, 1973, 1988, and 1994 Sanborn maps. Between 1973 and 1988, the maps indicate that the facility changed its name from Vita-Var to Polychrome Corporation.

Based on the Sanborn maps, it appears that the site had been occupied in some form since 1892 and has consistently been identified throughout its commercial existence (for at least 66 years) as a paint manufacturing facility.

2.6.1.2.3 Known Contaminants of Concern

Contaminants known to exist at the site based on the results of the environmental activities performed to date are summarized in Table 2-1. Contaminants of concern at the Reichold site included benzene, xylene and PCE.

2.6.1.2.4 Hydrologic Conditions

The November 1997 *Site Investigation Report* indicated that the flow in the surficial aquifer at this site was east-northeast across the facility. It should be noted that the groundwater flow direction calculations are based on limited information (one round of groundwater level readings and three wells located within an approximately 0.6 acre area). This was the only data available for the surficial aquifer and no investigative activities (including installation of wells) have been performed in the deeper aquifers at the Reichold facility.

2.6.1.3 Stanley Tools Works Site - 140 Chapel Street

2.6.1.3.1 Regulatory Status

The Stanley site has undergone extensive environmental investigations. The site began Environmental Cleanup and Responsibility Act (ECRA)-related investigative activities after announcing closure of this plant in March 1985. Since that time, numerous reports, work plans and correspondence have been submitted to the NJDEP. Table 1 of *The Stanley Tools Works Remedial Action Work Plan Addendum – Eastern Parcel, Newark, New Jersey* dated May 1998 details all correspondence between the NJDEP and Stanley which were available at the time WESTON conducted a review of public records. There is currently a Deed Notice for the site relating to remaining soil contamination at the site. A CEA application has been submitted for dissolved phase contamination in the surficial aquifer; this application includes a figure which depicts contamination flowing on to the

Sherwin-Williams site. The free phase product contamination in the overburden aquifer is being addressed through both passive (skimmers) and active (pump and treat) remedial efforts.

Stanley submitted in November 1994 an Alternative Cleanup Level (ACLs) Proposal for their site. The NJDEP accepted ACLs for their site.

A list of the ACLs is provided in the table below.

Compound	Groundwater Quality Criteria or PCL	ACL
Metals/Inorganics		
Antimony	20	1000
Arsenic	8	112
Cadmium	4	263
Chromium	100	184000
Lead	10	4380
Nickel	100	NC
Selenium	50	35000
Zinc	5000	1260000
Pesticides		
4,4'-DDT	0.1	6.35
alpha-BHC	0.02	8.15
beta-BHC	0.2	1.9
Heptachlor	0.4	15.80
Base/Neutrals		
Bis(2-Chloroethyl) Ether	10	13.2
Bis(2-Ethylhexyl) Phthalate	30	1890
Hexachloroethane	10	101
N-Nitrosodiphenylamine	20	333
Volatile Organics		
Benzene	1	45.7
Chlorobenzene	4	10300
Chloroform	6	921
Methylene Chloride	2	885
Tetrachloroethylene	1	365
Trans-1,2-Dichloroethene	100	36500
Trichloroethylene	1	889
Vinyl Chloride	5	51.9

2.6.1.3.2 Summary of Historic Site Operations

The Stanley site is a 6-acre site. The facility was originally operated by the Atha Tool Company, beginning in 1875 for the manufacture of hammers. Stanley Rule and Lever purchased the property and the Stanley Works merged with Stanley Rule and Lever in 1913. Operations were expanded to include the manufacture of hammers, sledges, mauls and wedges until 1985, when the facility was closed. The facility is currently used as office and warehouse storage.

2.6.1.3.3 Known Contaminants of Concern

Contaminants known to exist at the site based on the results of the environmental activities performed to date are summarized in Table 2-1. Contaminants of concern at the Stanley Tools site included TPHC, PCE, TCE and various metals.

2.6.1.3.4 Hydrologic Conditions

The Remedial Action Work Plan Addendum – Eastern Parcel, Newark, New Jersey dated May 1998 presents the cumulative groundwater flow data on both parcels obtained to date (May 1998). All data collected indicates that groundwater flow in the surficial aquifer is northeast across the site towards the Sherwin-Williams site. The CEA application shows the dissolved phase plume extending onto the central and eastern portions of the Sherwin-Williams facility (Figure 5 *The Remedial Action Work Plan Addendum – Eastern Parcel, Newark, New Jersey,* May 1998). The horizontal hydraulic gradient in the surficial unit varies between 0.001 and 0.003. The vertical hydraulic gradient in the overburden is downward from the surficial water bearing unit with a value of approximately 0.04. Stanley reported that there was no upward movement observed from the upper glacial unit to the surficial unit. This may be due to the pinching of the meadow mat unit which would act as a leaky confining unit. Stanley reported (*Alternate Cleanup Level Proposal for the Stanley Tools Facility, Newark, New Jersey,* November 1994) that groundwater flow direction in the glacial aquifer is to the southwest beneath the Stanley site.

2.6.1.4 Chemical Land Holding Site – 80 – 120 Lister Avenue

Due to the volume of investigative work performed and its substantial impact upon surrounding sites, a detailed description of the CLH Superfund site was provided as Appendix G of the October 2001 *ISRA Investigation Report.* However, a summary of the file review information collected during the file review is presented below.

ENSR

ENSR Consulting
and Engineering

Somerset Executive Square 1
One Executive Drive
Somerset, NJ 08873
(908) 560-7323
FAX (908) 560-1688

August 26, 1994

VIA AIRBORNE EXPRESS

Mr. Joseph Ludovico
New Jersey Department of Environmental Protection
Division of Responsible Party Site Remediation
CN 028, 401 East State Street
Trenton, New Jersey 08625-0028

Re: AEC 8 Pipeline Conduit, Sump and Clay Pipeline
Former Stanley Tools Facility
140 Chapel Street, Newark, New Jersey
ISRA Case No. 85178

Dear Mr. Ludovico:

As you requested during our August 2, 1994 telephone conversation, this letter summarizes the work ENSR Consulting and Engineering (ENSR) and The Stanley Works (Stanley) have completed and plan to complete related to the discovery of the "pipeline conduit", "sump structure" and "clay pipeline" located in and around AEC 8 in the east yard at the above-referenced site. During our August 2 conversation and at other times in the past several weeks, we have provided oral updates to you concerning our work in these areas. The purpose of this letter is to provide you with a written summary of the work conducted to date, and to apprise you of our plans to conduct Remedial Investigations(RI)/Remedial Actions (RA) activities in this area so we can complete site capping activities as soon as possible.

As we have proceeded with RI/RA activities related to these structures, we have periodically updated you on our progress and where possible, have obtained your approval on various phases of our work. However, in some cases we were not able to establish contact with you, and as a result, made "field decisions" related to RI/RA work conducted on the above-referenced structures. In these cases, we followed the Technical Requirements for Site Remediation (Technical Requirements) to the extent possible. In some cases, however, the Technical Requirements did not clearly address circumstances at the site. For example, the regulations do not provide clear guidance on analytical parameter selection. In addition, these regulations were developed with the presumption that site assessments and remediation are conducted as a phased approach (ie. Preliminary Assessment, Site Investigation, Remedial Investigation, Remedial Action, etc.) and, do not specifically address the investigation and cleanup of contaminated areas discovered when conducting a remedial action. As you know, Stanley and ENSR requested a variance from the strict requirements of the Technical Requirements for delineation and post-remediation sampling which was approved by NJDEP in the final RA approval letter dated June 21, 1994. Thus, the NJDEP has recognized the need to accept work at the site which was in substantial compliance with the Technical Requirements (See NJAC 7:26E 1.3(C)) We believe that the work conducted to date and that is planned in connection with the areas referenced above, satisfy that requirement.

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Summary of Approved Site Remedial Action and Technical Basis for Additional Remedial Requirements

The proposed remedial action for the site is the placement of a cap constructed of asphalt and/or recycled soil over the entire site. The purpose of the cap is to eliminate the potential direct contact exposure pathway to soil contamination and to minimize the impact of contaminants in soil to the groundwater. The cap will serve as a barrier between contaminated soil and direct human contact, and will also minimize percolation of precipitation into contaminated soils and the potential migration of soil contaminants into the groundwater.

We used the rationale NJDEPE approved in the February 1994 Raw Addendum in the development of a plan to address the areas recently discovered in AEC 8. It is also important to recognize that Stanley has agreed to remediate the entire site by capping. As a result, "active remediation" (e.g. excavation or treatment) requirements should be based on the potential impact of contaminants in soils on the quality of groundwater. Active remediation may be required if "source areas" have a potential significant future impact on groundwater. This approach is consistent with the technical approach presented in the February 1994 RAW Addendum which was approved by NJDEP.

We also note that although NJDEP has established Impact to Groundwater Soil Cleanup Criteria (ITGSCC), the NJDEP recognizes that site specific factors, including background conditions, typically warrant site specific cleanup criteria that differ from the NJDEP published criteria. For example, we understand that the ITGSCC were developed using the assumption that downward water movement through the soil column is 0.3 cm per day; that 100 percent of the yearly rainfall will infiltrate through the soil column; and that the degradation rates of compounds of concern will be zero. Considering the site capping will eliminate precipitation from migrating through the soil column and that many of the compounds of concern are degradable, these assumptions are extremely conservative. In addition, the entire area surrounding the site has been subject to heavy industrial use for at least 75 years and regional contamination from other sources has been documented. The Newark area is not used as a drinking water source and groundwater is not currently used in the immediate area of the Stanley site. The ITGSCC were also developed by NJDEP, in general, to determine if a remedial action is necessary for an AEC or site. The above site-specific factors and the fact that the entire site is already being remediated by capping, clearly justify higher site cleanup criteria than NJDEP's ITGSCC. It is also important to recognize that Stanley has agreed to accept a Declaration of Environmental Restriction (DER) for the entire site.

ENSR

August 26, 1994
Mr. Joseph Ludovico
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Summary of Completed RI/RA Work and Plans for RI/RA Completion

Pipeline Conduit

Area Description

The concrete-lined pipeline conduit (estimated to be 260-feet long, 3-feet wide, and 3-feet deep) runs north-south on the east parcel as shown in Figure 1. The conduit contained two pipelines. These pipelines are believed to have been used to carry steam, according to Mr. Raymond Payne, a former maintenance worker for Stanley. The walls and base of the conduit are constructed of approximately 6-inches of concrete with the exception of a 14-foot long section within the conduit that has no concrete base. Approximately 200 linear feet of the conduit structure was covered with a concrete top and has a void space above the piping. The remaining length of the conduit did not have a concrete top and was filled with soil. (See Figure 1)

The pipeline conduit is 20-feet to the east of AEC 32, which was formerly a pipe trench, and contained elevated TPH concentrations (ENVIRON sample 3204, 116,000 ppm) at the surface. The pipeline conduit and the AEC 32 trench appear to have been related because a conduit lateral with a pipe running east-west connects the conduit to the trench. This lateral connection is believed to have been a direct pathway for any type of liquid to flow from the AEC 32 trench to the pipeline conduit. Stained soil was observed in the bottom of a portion of the pipeline conduit. This stained soil consisted of loose material as well as a hardened material. We believe the hardened material was formed from oil that migrated from the trench in AEC 32 and subsequently hardened due to the heat from the steam. In general the condition of the conduit concrete is fair to poor.

Summary of Completed RI/RA Activities

During the RI/RA activities to address the pipeline conduit, several preliminary assessment, delineation, and post-remediation samples were collected. Table 1 summarizes the sample numbers, sample depths, sample types and analysis conducted on each sample. Approximately 6 cubic yards of the loose stained soil in the portion of the conduit that had a concrete cap and was not backfilled, was removed from the conduit. In addition, in order to address contaminated soil (18,200 ppm of TPHC in Sample No. AEC8-4A) from the small section of the conduit (approximately 14 linear feet) that did not have a concrete floor, the soil in this area was removed to a depth of 4 feet which was the depth previously determined to be a clean zone (AEC 8-4C). As discussed below all excavated soil related to the conduit is currently stockpiled inside the building and will remain on-site until addition remedial actions related to the Sump Structure and Clay Pipeline are completed.

ENSR

August 26, 1994
Mr. Joseph Ludovico
Page 4

Discussion of Analytical Results and Conclusions

The results of samples collected during RI/RA activities to address the pipeline conduit are summarized in Table 2 and Figure 1. Results of Quality Assurance samples are shown on Table 5. As previously discussed, the potential direct contact exposure pathway on this site is being eliminated by capping the site. As a result, for discussion purposes only, Table 2 and Figure 1 show compounds that exceed the NJDEP ITGSCC only. However, it should be noted that, as previously discussed, neither Stanley nor ENSR necessarily agree that these criteria form an appropriate basis for additional remedial actions (other than the site capping previously approved by NJDEP) in order to provide adequate protection of human health and the environment.

Based on the results of this sampling, a declining trend of contaminant concentrations has been clearly documented to both the north and to the south of the area where the pipe connected the trench in AEC 32 to the conduit. Concentrations of TPHCs from the most southern and northern ends of the conduit were 25.6 ppm (AEC 8-6) and 236 ppm (AEC 8-6), respectively. This supports the supposition that the source of the contamination was the connection of the trench in AEC 32 to the conduit.

The results of post-excavation soil samples (AEC 8-4B through 4E) collected from the area of the conduit without a concrete bottom, also documents that contaminated soil from this section of the conduit has been removed and that underlying soils have not been impacted. Finally, the sample below the concrete at the location with the highest levels of TPHC found within the conduit (240,000 ppm at sample location AEC 8-1), only contained 56.4 ppm of TPHC which demonstrates the integrity of the concrete is adequate to prevent the vertical migration of contaminants.

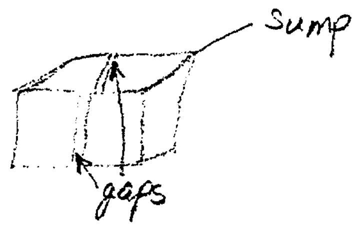
Recommendations

Based on the RI/RA conducted to address contaminated soil within the pipeline conduit, and review of post-remediation sample results, potential source areas that may have significantly impacted groundwater have been removed from this area. No further action other than capping this area as previously approved by NJDEP is recommended.

Sump Structure and Clay Pipeline

Area Description

A concrete sump structure (8-feet by 5-feet by 6-feet deep) was uncovered adjacent to the pipeline conduit with a 16-inch cast iron pipe entering and exiting the structure and pitching towards the east (See Figure 1). The former function of the sump structure is not known. The base of the sump structure was covered with approximately 4-inches of stained soil. An 8-inch circular sump port is located at the bottom of the sump structure with an approximate depth of 6-inches to a concrete base. By the construction of the structure alone it appears as though the sump structure may have



been an oil/water separator. The integrity of the sump structure concrete appears in good condition. What about the 2-3 inch gaps between the concrete sump walls?

During excavation activities at the site, a structure believed to be a concrete-lined catch basin (3-feet,by 3-feet, by 2-feet deep) was uncovered adjacent to building 20A (See Figure 1). According to Mr. Raymond Payne, this structure collected rainwater from in front of the doorway of this building. Heavily stained soil was found inside this catch basin. A 4-inch cast iron pipe originates from this catch basin and runs 25-feet north and makes a 90-degree turn downward into a 12-inch clay pipe. Heavily stained soil was also discovered inside this clay pipe at this location. According to Ray Payne this clay pipe is an abandoned combined sewer line (See Figure 1 for location).

Summary of Completed RI/RA Activities

A test pit soil delineation program, with the use of a field gas chromatograph (field GC), was implemented around the sump structure and associated pipeline, catch basin , and clay pipeline. Table 3 summarizes the sample locations, sample depths, sample types, and analysis conducted on each sample. Sample locations and results are shown in Figure 1. The field GC was used for the analysis of tetrachloroethene, trichloroethene, and cis-1,2 dichloroethene. Samples were generally taken at the depth of the clay pipe invert (6'- 6.5') and in some cases 6-inches above the groundwater table. In addition to the use of the field gas chromatograph, selected samples were sent to the laboratory for correlation with the field GC. In general, based on field observations during the test pit program, various sections of the clay pipeline to the south of test pit location SP-23 were noticeably in poor condition and several areas of significantly contaminated soil were observed. In contrast, the pipeline to the north of this test pit location, was observed to be in generally good condition and visual contamination was not observed. A clay layer was also observed below the clay pipeline at the majority of test pit locations.

In addition to the RI activities discussed above, all soil from the interior of the sump structure and catch basin was removed. Additionally, visually contaminated soil adjacent to the south side of the sump and a portion of clay pipe between building 20A and the sump was excavated. As discussed below, all visually stained soil that was removed was stockpiled inside building 51 and will remain on-site until additional remedial actions related to the Sump Structure and Clay Pipeline are completed.

Discussion of Analytical Results and Conclusions

The results of samples collected during RI/RA activities along the pipeline are summarized in Table 4 and Figure 1. Results of Quality Assurance samples are shown on Table 5. Comparison of field GC results to actual laboratory results indicate excellent correlation. This comparison is summarized on Table 6. As previously discussed, the potential direct contact exposure pathway is being eliminated by capping the site. As a result, for discussion purposes only, Table 4 and Figure 1 show compounds that exceed the NJDEP ITGSCC only. However, it should be noted that, as previously discussed, neither Stanley nor ENSR necessarily agrees that these criteria form an appropriate basis for additional remedial actions (other than the site capping previously approved by NJDEP) in order to provide adequate protection of human health and the environment.

The results of samples collected during RI activities indicate significant soil contamination from the clay pipeline was found adjacent to the sump structure and underneath the pipeline that runs from building No. 20 A to test pit location SP-24. In addition, significant concentrations of tetrachloroethene were found within the sediment in the samples designated as Clay Pipe (14,000 ppm laboratory and >100 ppm Field GC) and CP-2 (>100ppm based on the field GC). In contrast, field GC results indicate (Sample's CP-3,4, and 5) other portions of the pipeline do not contain significant concentrations of VOCs. Based on these data and field observations it is also likely that significantly VOC contaminated sediment exists in portions of the pipeline. However, based on laboratory results and visual observations during the test pit program, it also appears that the integrity of the pipeline to the north of test location SP-23 is in generally good condition and that significant leakage from this segment has not occurred. Based on these sample results we also conclude the source of VOC contamination at the Stanley site is related to the catch basin and clay pipeline and is not associated with the sump structure as originally thought (primarily due to the fact that the clay pipeline is directly adjacent to the sump structure and the sediment within the sump structure only had trace levels of VOCs).

Recommendations

As requested by NJDEP, ENSR and Stanley have evaluated the need to conduct further investigations related to the sump structure pipeline underneath building No. 20A. Based on our evaluation, and as discussed above, we believe the VOC contaminated soil found during RI activities is related to the clay pipeline and catch basin and not related to the sump structure. We also believe that the catch basin on the exterior of building is the pathway in which VOC contaminated material entered the clay pipeline. As a result, we do not propose additional investigations underneath the building.

In order to address the contaminated soil found in the general area of the sump structure we plan to continue with excavation of soil in this area as shown in Figure 1. This excavation includes the pipeline and contaminated soil below the pipeline starting

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at the location where the pipe exits building 20A and will extend to the north and stop at test pit location SP-23 (excluding the small area where the pipeline goes underneath the railroad spur). In addition, contaminated soil underneath the sump structure in addition to a small area between test pits SP-22 and SP-23 will be excavated (See Figure 1). Post-excavation soil sample locations will depend on the final dimensions of the excavation, however, we plan to collect post-excavation soil samples in accordance with N.J.A.C. 7:26E-6.4. Concentrations of tetrachloroethene, trichloroethene, and cis-1,2 dichloroethane will be measured with a field GC in all samples. In addition, approximately 50 percent (to include delineation samples already collected) of the post excavation soil samples will be analyzed by a New Jersey certified laboratory for tetrachloroethene, trichloroethene, and cis-1,2 dichloroethene. Following excavation and post-excavation activities this area will be capped as previously approved by NJDEP.

We also plan to plug the upstream end of the clay pipeline at test pit location SP-23. From this point and continuing to the north, the pipeline will be capped as previously approved by NJDEP. The combination of the cap over the entire site, the presence of the clay layer below the pipe and the fact that the sludge is contained within the pipe (which is in good condition) indicates that there is not a significant risk that contaminated sludge will significantly impact groundwater. This conclusion is supported by the results of samples collected below the pipeline, and historical soil samples collected in this area by ENVIRON Corporation as shown in Figure 1.

Handling of Contaminated Soils

Excavated soil related to the conduit, sump structure, and clay pipe were stockpiled inside Building 51, beginning on June 20, 1994. Additional soils to be excavated in connection with the sump structure and clay pipeline also will be stockpiled in Building 51. All of these soils will remain on-site until all remedial actions described herein (or otherwise determined to be necessary) are completed. At that time, Stanley plans to evaluate off-site disposal and ex-situ treatment of the material. Once the evaluation is completed, Stanley will either dispose of the material off-site or request NJDEP approval to treat the material on-site. Based on our telephone conversation on August 16, 1994, we understand we have NJDEP approval to continue storing this soil onsite.

Schedule

Stanley is very interested in completing the ISRA Remediation as soon as possible. Our current schedule to complete soil remediation was submitted to NJDEP in the July 1994 progress report which was submitted to NJDEP on August 12, 1994. In order to meet this schedule, we would like to obtain verbal NJDEP approval to proceed with the proposed sampling and remediation activities contained herein by September 12, 1994 and final written NJDEP approval by September 16, 1994. In order to meet this schedule, we propose to have a conference call with NJDEP to discuss this letter on September 12, 1994 at 2:00 PM. Although we would like to obtain written NJDEP approval to complete the work related to the discoveries in the area of AEC 8, we understand this may not be possible due to schedule constraints.

We sincerely appreciate your past responsiveness in providing us with timely approvals to complete RI/RA work associated with these unanticipated discoveries, and look forward to your positive response. Please contact me to let me know if our proposed conference call is acceptable to you. In the interim, please feel free to contact me if you have any questions.

Sincerely,

Richard J. Konkowski

Richard J. Konkowski
Associate

Enclosures

Tables 1-6 Figure 1 Laboratory QA/QC purchases

Reference No. 6303-057(2)/RK-JL009.LTR

cc: R. Hoover
A. Kolesar, Esq.
W. Duvel
File: 6303-056-7.3

TABLE 1

CONDUIT SOIL SAMPLE PARAMETERS - STANLEY TOOLS
NEWARK, NEW JERSEY

Sample Number	Sample Depth	Delineation, Post-Remedial or Preliminary Assessment	Analyses
AEC8-1	Conduit Base	Preliminary Assessment	PP+40, PHC
AEC8-10	Conduit Base	Preliminary Assessment (DUP.)	PP+40
AEC8-1A	4-4.5' Below Base	Post-Remedial	PHC
AEC8-2	Conduit Base	Preliminary Assessment	PHC
AEC8-3	Conduit Base	Preliminary Assessment	PHC
AEC8-4A	Surface	Preliminary Assessment	PHC
AEC8-4B	4-4.5' Below Base	Post-Remedial	VOA, BN, Pb
AEC8-4C	4-4.5' Below Base	Post-Remedial	BN, Pb, PHC
AEC8-4OC	4-4.5' Below Base	Post-Remedial (DUP.)	PHC
AEC8-4D	4-4.5' Below Base	Post-Remedial (DUP.)	VOA, BN, Pb
AEC8-4E	4-4.5' Below Base	Post-Remedial	BN, Pb, PHC
AEC8-5	Conduit Base	Delineation	PHC
AEC8-6	Conduit Base	Delineation	PHC
ACE8-6D	Conduit Base	Delineation	PHC

DUP. - **Duplicate**
PP + 40 - **Priority Pollutants + 40**
PHC - **Petroleum Hybrocarbon**
VOA - **Volatile Organic Analysis**
BN - **Base Neutrals**
Pb - **Lead**

6303-056(2)/CONSP1.TBL

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TABLE 2

Summary of Conduit Soil Sampling Results - Stanley Tools
Newark, New Jersey

Compound (ppm)	Field Sample No.	AEC8-1	AEC8-1A	AEC8-2	AEC8-3	AEC8-4A	AEC8-4B	AEC8-4C	NJDEP Soil Cleanup Criteria (ppm) April 1994 Impact to G.W.
	Depth	Surface	4-4.5' Below Base	Surface	Surface	Surface	4-4.5'	4-4.5'	
	Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
	Laboratory Sample No.	98435/99038	99038	98436	98437	99123	99124	10561	
	Sample Date	6/16/94	6/23/94	6/13/94	6/13/94	6/24/94	7/26/94	7/26/94	
Volatile Organics									
Methylene Chloride		0.004B (0.0015)	NA	NA	NA	NA	0.0045B (0.001)	NA	1
cis-1,2-Dichloroethene		0.0018 (0.0015)	NA	NA	NA	NA	0.022 (0.001)	NA	1
Chloroform		ND (0.0015)	NA	NA	NA	NA	ND (0.001)	NA	1
Trichloroethene		ND (0.0015)	NA	NA	NA	NA	0.017 (0.001)	NA	1
Tetrachloroethene		0.0009J (0.0015)	NA	NA	NA	NA	0.180 (0.001)	NA	1
Toluene		ND (0.0015)	NA	NA	NA	NA	0.0018 (0.001)	NA	500
1,2 Dichloroethane		NA	NA	NA	NA	NA	NA	NA	1
1,1,1-Trichloroethane		0.0009J (0.0015)	NA	NA	NA	NA	0.028B (0.001)	NA	50
Xylene (Total)		NA	NA	NA	NA	NA	0.0009J (0.001)	NA	10
Total Tentatively Identified Compounds		0.515	NA	NA	NA	NA	NA	NA	10,000
Semi-Volatile Organics									
Acenaphthylene		ND (37)	NA	NA	NA	NA	ND (0.017)	ND (0.024)	NS
Fluoranthene		2.1J (37)	NA	NA	NA	NA	0.120 (0.017)	ND (0.024)	100
Pyrene		4.0J (37)	NA	NA	NA	NA	0.098 (0.017)	ND (0.024)	100
Anthracene		ND (37)	NA	NA	NA	NA	0.012J (0.017)	ND (0.024)	100
Benzo(a)anthracene		ND (37)	NA	NA	NA	NA	0.072 (0.017)	ND (0.024)	~~500~~ .9
bis(2-Ethylhexyl)phthalate		290 (37)	NA	NA	NA	NA	0.097J (0.350)	ND (0.480)	100
Chrysene		ND (37)	NA	NA	NA	NA	0.060 (0.017)	ND (0.024)	500
Benzo(a)Pyrene		1.8J (37)	NA	NA	NA	NA	0.053 (0.017)	ND (0.024)	100
Phenanthrene		ND (37)	NA	NA	NA	NA	0.074 (0.017)	ND (0.024)	NS
Naphthalene		ND (37)	NA	NA	NA	NA	ND (0.017)	ND (0.024)	100

TABLE 2 (Cont'd)

Summary of Conduit Soil Sampling Results - Stanley Tools
Newark, New Jersey

Compound (ppm)	Field Sample No.	AEC8-1	AEC8-1A	AEC8-2	AEC8-3	AEC8-4A	AEC8-4B	AEC8-4C	NJDEP Soil Cleanup Criteria (ppm) April 1994 Impact to G.W.
	Depth	Surface	4-4.5' Below Base	Surface	Surface	Surface	4-4.5'	4-4.5'	
	Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
	Laboratory Sample No.	98435/99038	99038	98436	98437	99123	99124	10561	
	Sample Date	6/16/94	6/23/94	6/13/94	6/13/94	6/24/94	7/26/94	7/26/94	
Acenaphthene		ND (37)	NA	NA	NA	NA	ND (0.017)	ND (0.024)	100
Fluorene		ND (37)	NA	NA	NA	NA	ND (0.017)	ND (0.024)	100
Benzo(b)fluoranthene		NA	NA	NA	NA	NA	0.075 (0.017)	ND (0.024)	50
Benzo(k)fluoranthene		NA	NA	NA	NA	NA	0.030 (0.017)	ND (0.024)	500
Indeno(1,2,3-cd)pyrene		NA	NA	NA	NA	NA	0.028 (0.017)	ND (0.024)	500
Benzo(g,h,i)perylene		NA	NA	NA	NA	NA	0.029 (0.017)	ND (0.024)	NS
Total Tentatively Identified Compounds		3191	NA	NA	NA	NA	NA	NA	10,000
Metals									
Antimony		ND (4.2)N	NA	NA	NA	NA	NA	NA	†
Arsenic		9.4 (0.36)	NA	NA	NA	NA	NA	NA	†
Cadmium		24.9 (5.5)	NA	NA	NA	NA	NA	NA	†
Chromium		145 (0.58)*	NA	NA	NA	NA	NA	NA	NS
Copper		447 (0.79)N	NA	NA	NA	NA	NA	NA	†
Lead		2050 (35.5)	NA	NA	NA	NA	20.6 (2.9)	ND (4.1)	†
Mercury		0.39 (0.031)	NA	NA	NA	NA	NA	NA	†
Nickel		108 (1.9)	NA	NA	NA	NA	NA	NA	†
Selenium		1.2 (0.28)S	NA	NA	NA	NA	NA	NA	†
Silver		3.3 (0.67)	NA	NA	NA	NA	NA	NA	†
Zinc		1580 (21)	NA	NA	NA	NA	NA	NA	†
Total Petroleum Hydrocarbons		244,000 (25)	56.4 (25)	49,500 (25)	39,200 (25)	18,200 (25)	NA	ND	10,000

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TABLE 2 (Cont'd)

Summary of Conduit Soil Sampling Results - Stanley Tools
Newark, New Jersey

	Field Sample No.	AEC8-1	AEC8-1A	AEC8-2	AEC8-3	AEC8-4A	AEC8-4B	AEC8-4C	NJDEP Soil Cleanup Criteria (ppm) April 1994
	Depth	Surface	4-4.5' Below Base	Surface	Surface	Surface	4-4.5'	4-4.5'	
	Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Impact to G.W.
	Laboratory Sample No.	98435/99038	99038	98436	98437	99123	99124	10561	
Compound (ppm)	Sample Date	6/16/94	6/23/94	6/13/94	6/13/94	6/24/94	7/26/94	7/26/94	

NA - Not Analyzed
ND - Not Detected, value shown is the detection limit.
J - Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitation limit but greater than zero. The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
NS - No cleanup criteria established.
† - The impact to groundwater values for inorganics will be developed based upon site specific chemical and physical parameters.
♦ - Non-published NJDEP Soil Cleanup Criteria.
- Above NJDEP Soil Cleanup Criteria for impact to groundwater.
N - The spiked sample recovery is not within control limits.
* - Duplicate analysis is not within control limits.
S - The reported value was determined by the Method of Standard Additions (MSA).
* - Estimated (biased high).
D - Indicates duplicate sample of its counterpart field sample number.
Detection Limits are shown in parenthesis

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TABLE 2

Summary of Conduit Soil Sampling Results - Stanley Tools
Newark, New Jersey

Compound (ppm)	Field Sample No.	AEC8-4D	AEC8-4E	AEC8-4OC	AEC8-5	AEC8-6	AEC8-6D	AEC8-10	NJDEP Soil Cleanup Criteria (ppm) April 1994
	Depth	4-4.5'	4-4.5'	4-4.5'	Surface	Surface	Surface	0-6" Below Concrete	
	Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Impact to G.W.
	Laboratory Sample No.	10562	10558	10558	99327	99328	99329	98641	
	Sample Date	7/26/94	7/26/94	7/26/94	6/30/94	6/30/94	6/30/94	6/13/94	
Volatile Organics									
Methylene Chloride		0.0051B (0.0011)	NA	NA	NA	NA	NA	0.001JB (0.0015)	1
cis-1,2-Dichloroethene		0.035 (0.0011)	NA	NA	NA	NA	NA	ND (0.0015)	1
Chloroform		ND (0.0011)	NA	NA	NA	NA	NA	ND (0.0015)	1
Trichloroethene		0.026 (0.0011)	NA	NA	NA	NA	NA	0.0028 (0.0015)	1
Tetrachloroethene		0.200 (0.0011)	NA	NA	NA	NA	NA	ND (0.0015)	1
Toluene		0.002 (0.0011)	NA	NA	NA	NA	NA	0.0012J (0.0015)	500
1,2 Dichloroethane		0.0024 (0.0011)	NA	NA	NA	NA	NA	NA	1
1,1,1-Trichloroethane		0.028B (0.0011)	NA	NA	NA	NA	NA	ND (0.0015)	50
Xylene (Total)		0.0009J (0.0011)	NA	NA	NA	NA	NA	NA	10
Total Tentatively Identified Compounds		NA	NA	NA	NA	NA	NA	1.879	10,000
Semi-Volatile Organics									
Acenaphthylene		ND (0.018)	ND (0.018)	NA	NA	NA	NA	ND (74)	NS
Fluoranthene		0.150 (0.018)	ND (0.018)	NA	NA	NA	NA	ND (74)	100
Pyrene		0.120 (0.018)	ND (0.018)	NA	NA	NA	NA	ND (74)	100
Anthracene		0.020 (0.018)	ND (0.018)	NA	NA	NA	NA	ND (74)	100
Benzo(a)anthracene		0.087 (0.018)	ND (0.018)	NA	NA	NA	NA	ND (74)	500
bis(2-Ethylhexyl)phthalate		0.170J (0.370)	ND (0.360)	NA	NA	NA	NA	460 (74)	100
Chrysene		0.089 (0.018)	ND (0.018)	NA	NA	NA	NA	ND (74)	500
Benzo(a)Pyrene		0.065 (0.018)	ND (0.018)	NA	NA	NA	NA	ND (74)	100
Phenanthrene		0.110 (0.018)	ND (0.018)	NA	NA	NA	NA	ND (74)	NS
Naphthalene		ND (0.018)	ND (0.018)	NA	NA	NA	NA	ND (74)	100
Acenaphthene		ND (0.018)	ND (0.018)	NA	NA	NA	NA	ND (74)	100

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TABLE 2 (Cont'd)

Summary of Conduit Soil Sampling Results - Stanley Tools
Newark, New Jersey

Field Sample No.	AEC8-4D	AEC8-4E	AEC8-4OC	AEC8-5	AEC8-6	AEC8-6D	AEC8-10	NJDEP Soil Cleanup Criteria (ppm) April 1994
Depth	4-4.5'	4-4.5'	4-4.5'	Surface	Surface	Surface	0-6" Below Concrete	
Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Impact to G.W.
Laboratory Sample No.	10562	10558	10558	99327	99328	99329	98641	
Compound (ppm) / Sample Date	7/26/94	7/26/94	7/26/94	6/30/94	6/30/94	6/30/94	6/13/94	
Fluorene	ND (0.018)	ND (0.018)	NA	NA	NA	NA	ND (74)	100
Benzo(b)fluoranthene	0.098 (0.018)	ND (0.018)	NA	NA	NA	NA	NA	50
Benzo(k)fluoranthene	0.041 (0.018)	ND (0.018)	NA	NA	NA	NA	NA	500
Indeno(1,2,3-cd)pyrene	0.040 (0.018)	ND (0.018)	NA	NA	NA	NA	NA	500
Benzo(g,h,i)perylene	0.038 (0.018)	ND (0.018)	NA	NA	NA	NA	NA	NS
Total Tentatively Identified Compounds	NA	NA	NA	NA	NA	NA	3365	10,000
Metals								
Antimony	NA	NA	NA	NA	NA	NA	ND (4.2)N	†
Arsenic	NA	NA	NA	NA	NA	NA	12.1 (0.36)	†
Cadmium	NA	NA	NA	NA	NA	NA	ND (5.5)	†
Chromium	NA	NA	NA	NA	NA	NA	114 (0.58)*	NS
Copper	NA	NA	NA	NA	NA	NA	527)0.79)N	†
Lead	29 (3.1)	ND (0.03)	NA	NA	NA	NA	2500 (3.6)	†
Mercury	NA	NA	NA	NA	NA	NA	0.76 (0.031)	†
Nickel	NA	NA	NA	NA	NA	NA	83.7 (1.9)	†
Selenium	NA	NA	NA	NA	NA	NA	1.4 (0.28)	†
Silver	NA	NA	NA	NA	NA	NA	6.6 (0.67)	†
Zinc	NA	NA	NA	NA	NA	NA	2040 (21.1)	†
Total Petroleum Hydrocarbons	NA	ND	56.2 (25)	236 (25)	25.6 (25)	28.7 (25)	NA	10,000

TABLE 2 (Cont'd)

Summary of Conduit Soil Sampling Results - Stanley Tools
Newark, New Jersey

	Field Sample No.	AEC8-4D	AEC8-4E	AEC8-4OC	AEC8-5	AEC8-6	AEC8-6D	AEC8-10	NJDEP Soil Cleanup Criteria (ppm) April 1994
	Depth	4-4.5'	4-4.5'	4-4.5'	Surface	Surface	Surface	0-6" Below Concrete	
	Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Impact to G.W.
	Laboratory Sample No.	10562	10558	10558	99327	99328	99329	98641	
Compound (ppm)	Sample Date	7/26/94	7/28/94	7/28/94	6/30/94	6/30/94	6/30/94	6/13/94	

NA - Not Analyzed
ND - Not Detected, value shown is the detection limit.
J - Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitation limit but greater than zero. The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
NS - No cleanup criteria established.
† - The impact to groundwater values for inorganics will be developed based upon site specific chemical and physical parameters.
♦ - Non-published NJDEP Soil Cleanup Criteria.
- Above NJDEP Soil Cleanup Criteria for impact to groundwater.
N - The spiked sample recovery is not within control limits.
* - Duplicate analysis is not within control limits.
S - The reported value was determined by the Method of Standard Additions (MSA).
* - Estimated (biased high).
D - Indicates duplicate sample of its counterpart field sample number.
Detection Limits are Shown in Parenthesis.

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TABLE 3

SUMP STRUCTURE AND CLAY PIPE SOIL SAMPLE PARAMETERS
STANLEY TOOLS - NEWARK, NEW JERSEY

Sample Number	Sample Depth	Delineation, Post-Remedial or Preliminary Assessment	Analyses
SP-1	Inside Sump	Preliminary Assessment	PP+40, PHC
SP-2S	0-6" Below Sump Base	Delineation	VOA+10, BN+15, PCB, PHC, As, Pb
SP-3N	0-6" Below Sump Base	Delineation	VOA+10, BN+15, PCB, PHC, As, Pb
SP-4N	0-6" Below Sump Base	Delineation (DUP.)	VOA+10, BN+15, PCB, As
SP-5	0-6" Below Invert	Delineation	VOA+10, BN+15, PCB, PHC, As, Pb
SP-5D	0-6" Below Invert	Delineation (DUP.)	VOA+10, BN+15, PCB, PHC, As, Pb
SP-6	0-6" Below Gravel	Delineation	VOA+10, BN+15, PCB, PHC, As, Pb
SP-7	6-6.5'	Delineation	GC
	11.5-12'	Delineation	GC
SP-8	6-6.5'	Delineation	GC
	11.5-12'	Delineation	GC
SP-9	6-6.5'	Delineation	VOA, GC
	11.5-12'	Delineation	VOA, GC
SP-10	11.5-12'	Delineation	VOA, GC
SP-11	6-6.5'	Delineation	VOA, GC
	11.5-12'	Delineation	VOA, GC
SP-12	6-6.5'	Delineation	GC
	11.5-12'	Delineation	GC
SP-13	2-2.5'	Delineation	GC
	6-6.6'	Delineation	GC
	11.5-12'	Delineation	GC
SP-14	6-6.5'	Delineation	VOA, GC
SP-15	11.5-12'	Delineation	VOA, GC
SP-16	6-6.5'	Delineation	GC
	11.5-12'	Delineation	GC
SP-17	6-6.5'	Delineation	GC
	11.5-12'	Delineation	GC
SP-18	6-6.5'	Delineation	GC

TABLE 3
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SUMP STRUCTURE AND CLAY PIPE SOIL SAMPLE PARAMETERS
STANLEY TOOLS - NEWARK, NEW JERSEY

Sample Number	Sample Depth	Delineation, Post-Remedial or Preliminary Assessment	Analyses
	11.5-12'	Delineation	GC
SP-19	6-6.5'	Delineation	GC
	11.5-12'	Delineation	GC
SP-20	6-6.5'	Delineation	GC
	11.5-12'	Delineation	GC
SP-21	6-6.5'	Delineation	GC
	11.5-12'	Delineation	GC
SP-22	6-6.5'	Delineation	PERC, TCE, CIS-1, 2 DCE, PHC, GC
	11.5-12'	Delineation	PERC, TCE, CIS-1, 2 DCE, PHC, GC
SP-23	6-6.5'	Delineation	PERC, TCE, CIS-1, 2 DCE, PHC, GC
	11.5-12'	Delineation	PERC, TCE, CIS-1, 2 DCE, PHC, GC
SP-24	6-6.5'	Delineation	PERC, TCE, CIS-1, 2 DCE, PHC, GC
SP-25	6-6.5'	Delineation	GC
	11.5-12'	Delineation	GC
SP-26	6-6.5'	Delineation	PERC, TCE, CIS-1, 2 DCE, PHC, GC
SP-27	6-6.5'	Delineation	GC
	11.5-12'	Delineation	GC
SP-28	6-6.5'	Delineation	GC
	11.5-12'	Delineation	GC
SP-29	6-6.5'	Delineation	GC
	11.5-12'	Delineation	GC
SP-30	6-6.5'	Delineation	PERC, TCE, CIS-1, 2 DCE, PHC, GC
SP-31	6-6.5'	Delineation	GC
	11.5-12'	Delineation	GC
SP-32	6-6.5'	Delineation	PERC, TCE, CIS-1, 2 DCE
SP-33	6-6.5'	Delineation	PERC, TCE, CIS-1, 2 DCE

TABLE 3
CON'T

SUMP STRUCTURE AND CLAY PIPE SOIL SAMPLE PARAMETERS
STANLEY TOOLS - NEWARK, NEW JERSEY

Sample Number	Sample Depth	Delineation, Post-Remedial or Preliminary Assessment	Analyses
SP-34	6-6.5'	Delineation	PERC, TCE, CIS-1, 2 DCE
SP-35	6-6.5'	Delineation	PERC, TCE, CIS-1, 2 DCE
SP-36	6-6.5'	Delineation	PERC, TCE, CIS-1, 2 DCE
SP-37	6-6.5'	Delineation	PERC, TCE, CIS-1, 2 DCE
SP-38	6-6.5'	Delineation	PERC, TCE, CIS-1, 2 DCE
SP-39	6-6.5'	Delineation	PERC, TCE, CIS-1, 2 DCE
SP-39D	6-6.5'	Delineation	PERC, TCE, CIS-1, 2 DCE
SS-2	0-6" Below Concrete	Delineation	PERC, TCE, CIS-1, 2 DCE, PHC, GC
Clay Pipe	Interior	Preliminary Assessment	PERC, TCE, CIS-1, 2 DCE, PHC, GC

DUP. - Duplicate
VOA + 10 - Volatile Organic Anlysis + 10
BN + 15 - Base Neutrals + 15
PCB - Poychlorinated Biphenyls
PHC - Petroleum Hydrocarbons
As - Arsenic
Pb - Lead
PERC - Tetrachloroethene
TCE - Trichloroethene
CIS-1, 2 DCE - CIS-1, 2 Dichloroethene
GC - Gas Chromatograph used to field screen for PERC, TCE, and CIS-1, 2 DCE

TABLE 4

Summary of Sump Structure and Clay Pipe Soil Sampling Results - Stanley Tools
Newark, New Jersey

Field Sample No.	SP-1	SP-2S	SP-3N	SP-4N	SP-5	SP-5D	SP-6	NJDEP Soil Cleanup Criteria (ppm) April 1994
Depth	Surface	0-6" (Below Sump Base)	0-6" (Below Sump Base)	0-6" (Below Sump Base)	0-6" (Below Invert)	0-6" (Below Invert)	0-6" (Below Gravel)	
Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Impact to G.W.
Laboratory Sample No.	98642	99034	99035	99036	99155	99156	99157	
Compound (ppm) / Sample Date	6/16/94	6/23/94	6/22/94	6/23/94	6/27/94	6/27/94	6/27/94	
Volatile Organics								
Methylene Chloride	0.0053 (0.0014)	ND (7.2)	ND (0.0059)	ND (0.0059)	0.0069B (0.0012)	0.0066B (0.0012)	0.0065B (0.0011)	1
cis-1,2-Dichloroethene	0.019 (0.0014)	16 (7.2)	0.32 (0.0059)	0.28 (0.0059)	0.033 (0.0012)	0.044 (0.0012)	ND (0.0011)	1
Chloroform	0.0015 (0.0014)	ND (7.2)	ND (0.0059)	ND (0.0059)	ND (0.0012)	ND (0.0012)	ND (0.0011)	1
Trichloroethene	0.019 (0.0014)	30 (7.2)	0.073 (0.0059)	0.073 (0.0059)	0.028 (0.0012)	0.041 (0.0012)	0.0009J (0.0011)	1
Tetrachloroethene	0.160 (0.0014)	620 (7.2)	0.6 (0.0059)	0.65 (0.0059)	0.16 (0.0012)	0.24 (0.0012)	0.026 (0.0011)	1
Toluene	0.0008J (0.0014)	ND (7.2)	ND (0.0059)	ND (0.0059)	ND (0.0012)	ND (0.0012)	ND (0.0011)	500
1,1,1-Trichloroethane	ND (0.0014)	ND (7.2)	ND (0.0059)	ND (0.0059)	0.0022B (0.0012)	0.002B (0.0012)	0.0016B (0.0011)	50
Total Tentatively Identified Compounds	0.078	ND	ND	ND	0.019B	0.017B	0.011B	10,000
Semi-Volatile Organics								
Acenaphthylene	ND (36)	0.09J (0.095)	ND (0.39)	ND (0.39)	ND (0.020)	0.14 (0.019)	ND (0.37)	NS
Fluoranthene	3.4J (36)	ND (0.095)	1.1 (0.39)	ND (0.39)	0.63 (0.020)	1.9 (0.019)	0.49 (0.37)	100
Pyrene	4.0J (36)	1.8 (0.095)	0.87 (0.39)	ND (0.39)	0.63 (0.020)	1.9 (0.019)	0.43 (0.37)	100
Anthracene	ND (36)	0.110 (0.095)	0.062J (0.39)	ND (0.39)	0.046 (0.020)	0.18 (0.019)	0.062J (0.37)	100
Chrysene	ND (36)	0.93 (0.095)	0.55 (0.39)	ND (0.39)	0.34 (0.020)	0.85 (0.019)	0.3J (0.37)	500
bis (2-Ethyhexyl)phthalate	ND (36)	0.42J (1.9)	ND (0.39)	ND (0.39)	ND (0.39)	ND (0.39)	0.21J (0.37)	100
Benzo(k)fluoranthene	ND (36)	0.130 (0.095)	0.24J (0.39)	ND (0.39)	0.16 (0.020)	0.35 (0.019)	0.12J (0.37)	500
Benzo(a)Pyrene	ND (36)	0.180 (0.095)	0.51 (0.39)	ND (0.39)	0.300 (0.020)	0.75 (0.019)	0.19J (0.37)	100
Benzo(b)fluoranthene	3.4J (36)	0.3 (0.095)	0.62 (0.39)	ND (0.39)	0.41 (0.020)	1 (0.019)	0.26J (0.37)	50
Indeno(1,2,3-cd)pyrene	ND (36)	0.13 (0.095)	0.28J (0.39)	ND (0.39)	0.23 (0.020)	0.55 (0.019)	0.13J (0.37)	500
Benzo(g,h,i)perylene	ND (36)	0.150 (0.095)	0.28J (0.39)	ND (0.39)	0.23 (0.020)	0.55 (0.019)	0.14J (0.37)	NS

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TABLE 4 (Cont'd)

Summary of Sump Structure and Clay Pipe Soil Sampling Results - Stanley Tools
Newark, New Jersey

Field Sample No.	SP-1	SP-2S	SP-3N	SP-4N	SP-5	SP-5D	SP-6	NJDEP Soil Cleanup Criteria (ppm) April 1994
Depth	Surface	0-6" (Below Sump Base)	0-6" (Below Sump Base)	0-6" (Below Sump Base)	0-6" (Below Invert)	0-6" (Below Invert)	0-6" (Below Gravel)	Impact to G.W.
Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Laboratory Sample No.	98642	99034	99035	99036	99155	99156	99157	
Compound (ppm) / Sample Date	6/16/94	6/23/94	6/22/94	6/23/94	6/27/94	6/27/94	6/27/94	
Phenanthrene	ND (36)	0.500 (0.095)	0.60 (0.39)	ND (0.39)	0.36 (0.020)	1.4 (0.019)	0.39 (0.37)	NS
Benzo(a)anthracene	ND (36)	ND (0.095)	0.47 (0.39)	ND (0.39)	0.29 (0.020)	0.81 (0.019)	0.24J (0.37)	500
Dibenz(a,h)anthracene	ND (36)	ND (0.095)	0.075J (0.39)	ND (0.39)	0.05 (0.020)	0.14 (0.019)	ND (0.37)	100
Naphthalene	ND (36)	ND (0.095)	ND (0.39)	ND (0.39)	ND (0.39)	0.13 (0.019)	0.48 (0.37)	100
Acenaphthene	ND (36)	ND (0.095)	ND (0.39)	ND (0.39)	ND (0.020)	0.04 (0.019)	0.072J (0.37)	100
Di-n-butylphthalate	ND (36)	ND (0.095)	ND (0.39)	ND (0.39)	ND (0.020)	ND (0.019)	0.091J (0.37)	100
Benzidene	ND (36)	ND (0.095)	ND (0.39)	ND (0.39)	ND (0.020)	ND (0.019)	ND (0.74)	NS
Total Tentitively Identified Compounds	243.6	600	0.71	1.3	1.5	2.03	12.94	10,000
Metals								
Arsenic	127 (17.5)	1.4 (0.28)	2.8 (0.28)	3.0 (0.28)	17.9 (1.4)	22.3 (1.4)	26 (1.4)	†
Cadmium	25.7 (5.4)	NA	NA	NA	NA	NA	NA	†
Chromium	73.4 (0.57)*	NA	NA	NA	NA	NA	NA	NS
Copper	413 (0.77)N	NA	NA	NA	NA	NA	NA	†
Lead	8350 (34.6)	148 (2.7)	5.4 (2.8)B	NA	265 (3.3)	207 (3.2)	5420 (15.5)	†
Mercury	3.6 (0.031)	NA	NA	NA	NA	NA	NA	†
Nickel	94.3 (1.9)	NA	NA	NA	NA	NA	NA	†
Selenium	28.6 (1.4)S	NA	NA	NA	NA	NA	NA	†
Silver	2.9 (0.66)	NA	NA	NA	NA	NA	NA	†
Zinc	1900 (20.6)	NA	NA	NA	NA	NA	NA	†
Total Petroleum Hydrocarbons	2020 (25)	15,000 (25)	ND (25)	NA	ND (25)	ND (25)	545 (25)	10,000
Petroleum Hydrocarbons	4970 (25)**	NA	NA	NA	NA	NA	NA	10,000
Total PCBs	ND	ND (0.092)	ND (0.095)	ND (0.095)	ND (0.96)	ND (0.94)	0.310*	50

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TABLE 4 (Cont'd)

Summary of Sump Structure and Clay Pipe Soil Sampling Results - Stanley Tools
Newark, New Jersey

	Field Sample No.	SP-1	SP-2S	SP-3N	SP-4N	SP-5	SP-5D	SP-6	NJDEP Soil Cleanup Criteria (ppm) April 1994
	Depth	Surface	0-6" (Below Sump Base)	0-6" (Below Sump Base)	0-6" (Below Sump Base)	0-6" (Below Invert)	0-6" (Below Invert)	0-6" (Below Gravel)	
	Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Impact to G.W.
	Laboratory Sample No.	98642	99034	99035	99036	99155	99156	99157	
Compound (ppm)	Sample Date	6/16/94	6/23/94	6/22/94	6/23/94	6/27/94	6/27/94	6/27/94	

NA - Not Analyzed
ND - Not Detected, value shown is the detection limit.
J - Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitation limit but greater than zero. The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
NS - No cleanup criteria established.
† - The impact to groundwater values for inorganics will be developed based upon site specific chemical and physical parameters.
# - Above NJDEP Soil Cleanup Criteria for Impact to Groundwater.
N - The spiked sample recovery is not within control limits.
* - Duplicate analysis is not within control limits.
S - The reported value was determined by the Method of Standard Additions (MSA).
* - Estimated (biased high).
** - Sample re-analyzed by laboratory (5 gm sample dried with 30 gm powdered Na_2SO_4).
D - Indicates duplicate sample of its counter-part field sample number.
Detection Limits are Shown in Parenthesis.

TABLE 4 (Cont'd)

Summary of Sump Structure and Clay Pipe Soil Sampling Results - Stanley Tools
Newark, New Jersey

Field Sample No.	SP-9	SP-9	SP-10	SP-11	SP-11	SP-14	SP-15	SP-22	NJDEP Soil Cleanup Criteria (ppm) April 1994
Depth	6-6.5	11.5-12	11.5-12	6-6.5	11.5-12	6-6.5	11.5-12	6-6.5	
Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Impact to G.W.
Laboratory Sample No.	10589	10590	10591	10592	10593	10709	10712	11176	
Compound (ppm) / Sample Date	7/26/94	7/26/94	7/26/94	7/26/94	7/26/94	7/27/94	7/27/94	8/1/94	
Volatile Organics									
cis-1,2-Dichloroethene	ND (0.0025)	0.098 (0.0025)	0.110 (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.062)	ND (0.0025)	ND (0.012)	1
Trichloroethene	ND (0.0025)	ND (0.0025)	0.16 (0.0025)	0.0052 (0.0025)	0.004 (0.0025)	ND (0.062)	ND (0.0025)	ND (0.012)	1
Tetrachloroethene	7.8 (0.0025)	0.0056 (0.0025)	0.077 (0.0025)	0.072 (0.0025)	0.041 (0.0025)	1.7 (0.062)	0.0042 (0.0025)	6 (0.012)	1
Total Petroleum Hydrocarbons	NA	NA	NA	NA	NA	NA	NA	ND (25)	10,000

NA - Not Analyzed
ND - Not Detected, value shown is the detection limit.
J - Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitation limit but greater than zero. The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
NS - No cleanup criteria established.
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# - Above NJDEP Soil Cleanup Criteria for Impact to Groundwater.
N - The spiked sample recovery is not within control limits.
* - Duplicate analysis is not within control limits.
S - The reported value was determined by the Method of Standard Additions (MSA).
* - Estimated (biased high).
** - Sample re-analyzed by laboratory (5 gm sample dried with 30 gm powdered Na_2SO_4).
D - Indicates duplicate sample of its counter-part field sample number.
Detection Limits are Shown in Parenthesis.

TABLE 4 (Cont'd)

Summary of Sump Structure and Clay Pipe Soil Sampling Results - Stanley Tools
Newark, New Jersey

Field Sample No.	SP-22	SP-23	SP-23	SP-24	SP-26	SP-30	SP-32	SP-33	NJDEP Soil Cleanup Criteria (ppm) April 1994
Depth	11.5-12'	6-6.5'	11.5-12'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	
Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Impact to G.W.
Laboratory Sample No.	11177	11179	11180	11555	11559	11665	11854	11855	
Compound (ppm) / Sample Date	8/1/94	8/1/94	8/1/94	8/3/94	8/3/94	8/4/94	8/9/94	8/9/94	
Volatile Organics									
cis-1,2-Dichloroethene	0.015 (0.0025)	ND (0.062)	0.0083 (0.0025)	0.059 (0.0025)	0.0033 (0.0025)	0.0034 (0.0025)	ND (0.0025)	ND (0.0025)	1
Trichloroethene	0.012 (0.0025)	ND (0.062)	0.0041 (0.0025)	0.0045 (0.0025)	0.0013 (0.0025)	ND (0.0025	ND (0.0025)	ND (0.0025)	1
Tetrachloroethene	0.15 (0.0025)	1.7 (0.062)	0.14 (0.0025)	0.026 (0.0025)	0.120 (0.0025)	0.016 (0.0025)	ND (0.0025)	ND (0.0025	1
Total Petroleum Hydrocarbons	ND (25)	138 (25)	ND (25)	5,270 (25)	81.7 (25)	ND (25)	ND (25)	ND (25)	10,000

NA - Not Analyzed
ND - Not Detected, value shown is the detection limit.
J - Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitation limit but greater than zero. The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
NS - No cleanup criteria established.
† - The impact to groundwater values for inorganics will be developed based upon site specific chemical and physical parameters.
# - Above NJDEP Soil Cleanup Criteria for Impact to Groundwater.
N - The spiked sample recovery is not within control limits.
* - Duplicate analysis is not within control limits.
S - The reported value was determined by the Method of Standard Additions (MSA).
* - Estimated (biased high).
** - Sample re-analyzed by laboratory (5 grams dried with 30 grams of powdered Na_2SO_4).
D - Indicates duplicate sample of its counter-part field sample number.
Detection Limits are Shown in Parenthesis.

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TABLE 4 (Cont'd)

Summary of Sump Structure and Clay Pipe Soil Sampling Results - Stanley Tools
Newark, New Jersey

Field Sample No.	SP-34	SP-35	SP-36	SP-37	SP-38	SP-39	SP-39D	SS-2	NJDEP Soil Cleanup Criteria (ppm) April 1994
Depth	6-6.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	6-6.5'	0-6" Below Concrete	
Type	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Impact to G.W.
Laboratory Sample No.	11856	11857	11858	12017	12018	12019	12020	11670	
Compound (ppm) / Sample Date	8/9/94	8/9/94	8/9/94	8/10/94	8/10/94	8/10/94	8/10/94	8/4/94	
Volatile Organics									
cis-1,2-Dichloroethene	ND (0.0025)	ND (0.0025)	ND (0.0025)	1.2 (0.062)	ND (0.0025)	ND (0.0025)	ND (0.0025)	ND (0.0025)	1
Trichloroethene	ND (0.0025)	ND (0.0025)	ND (0.0025)	0.480 (0.062)	ND (0.0025)	0.003 (0.0025	ND (0.0025)	0.025 (0.0025)	1
Tetrachloroethene	ND (0.0025)	ND (0.0025)	ND (0.0025)	6.5 (0.062)	0.011 (0.0025)	0.030 (0.0025)	0.014 (0.0025)	ND (0.0025)	1
Total Petroleum Hydrocarbons	ND (25)	ND (25)	ND (25)	NA	NA	NA	NA	61.5 (25)	10,000

NA - Not Analyzed
ND - Not Detected, value shown is the detection limit.
J - Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitation limit but greater than zero. The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
NS - No cleanup criteria established.
† - The impact to groundwater values for inorganics will be developed based upon site specific chemical and physical parameters.
# - Above NJDEP Soil Cleanup Criteria for Impact to Groundwater.
N - The spiked sample recovery is not within control limits.
* - Duplicate analysis is not within control limits.
S - The reported value was determined by the Method of Standard Additions (MSA).
* - Estimated (biased high).
** - Sample re-analyzed by laboratory (5 grams dried with 30 grams of powdered Na_2SO_4).
D - Indicates duplicate sample of its counter-part field sample number.
Detection Limits are Shown in Parenthesis.

TABLE 4 (Cont'd)

Summary of Sump Structure and Clay Pipe Soil Sampling Results - Stanley Tools
Newark, New Jersey

Compound (ppm)			
	Field Sample No.	Clay Pipe	NJDEP Soil Cleanup Criteria (ppm) April 1994
	Depth	Interior	
	Type	Sediment	Impact to G.W.
	Laboratory Sample No.	11182	
Compound (ppm)	Sample Date	8/1/94	
Volatile Organics			
cis-1,2-Dichloroethene		ND (250)	1
Trichloroethene		ND (250)	1
Tetrachloroethene		14,000 (250)	1
Total Petroleum Hydrocarbons		NA	10,000

NA - Not Analyzed
ND - Not Detected, value shown is the detection limit.
J - Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitation limit but greater than zero. The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
NS - No cleanup criteria established.
† - The impact to groundwater values for inorganics will be developed based upon site specific chemical and physical parameters.
# - Above NJDEP Soil Cleanup Criteria for Impact to Groundwater.
N - The spiked sample recovery is not within control limits.
* - Duplicate analysis is not within control limits.
S - The reported value was determined by the Method of Standard Additions (MSA).
* - Estimated (biased high).
** - Sample re-analyzed by laboratory (5 grams dried with 30 grams of powdered Na_2SO_4).
D - Indicates duplicate sample of its counter-part field sample number.
Detection Limits are Shown in Parenthesis.

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TABLE 5

Summary of QA/QC Results - Stanley Tools
Newark, New Jersey

Field Sample No.	FB6-13-94	FB6-16-94	FB6-23-94	FB6-24-94	FB6-27-94	FB6-28-94	NJDEP Soil Cleanup Criteria (ppm) April 1994
Type	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Impact to G.W.
Laboratory Sample No.	98643/98706	98706	99037	99125	99158	99219	
Compound (ppm) / Sample Date	6/13/94	6/16/94	6/23/94	6/24/94	6/27/94	6/28/94	
Semi-Volatile Organics							
bis (2-Ethyhexyl)phthalate	NA	0.0083 (0.0012)	ND (0.0011)	NA	ND (0.0012)	ND (0.011)	100
Total Tentitively Identified Compounds	NA	0.008B	ND	NA	ND	ND	10,000
Metals							
Selenium	NA	2.7 (1.9)B	NA	NA	NA	NA	†
Silver	NA	4.9 (4.5)B	NA	NA	NA	NA	†
Total Petroleum Hydrocarbons	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	ND (1)	10,000

NA - Not Analyzed
ND - Not Detected, value shown is the detection limit.
J - Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitation limit but greater than zero. The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
NS - No cleanup criteria established.
† - The impact to groundwater values for inorganics will be developed based upon site specific chemical and physical parameters.
♦ - Non-published NJDEP Soil Cleanup Criteria.
- Above NJDEP Soil Cleanup Criteria for Impact to Groundwater.
N - The spiked sample recovery is not within control limits.
* - Duplicate analysis is not within control limits.
S - The reported value was determined by the Method of Standard Additions (MSA).
* - Estimated (biased high).
** - Sample re-analyzed by laboratory volume reduced 30 grams to 5 grams dried with 30 grams of granular Na_2SO_4.
D - Indicates duplicate sample of its counter-part field sample number.
Detection Limits are Shown in Parenthesis.

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TABLE 5 (Cont'd)

Summary of QA/QC Results - Stanley Tools
Newark, New Jersey

Field Sample No.	FB6-30-94	FB7-26-94	FB7-27-94	FB8-9-94	FB8-10-94	NJDEP Soil Cleanup Criteria (ppm) April 1994
Type	Field Blank	Field Blank	Field Blank	Field Blank	Field Blank	Impact to G.W.
Laboratory Sample No.	99330	10559	10715	11859	12021	
Compound (ppm) / Sample Date	6/30/94	7/26/94	7/27/94	8/9/94	8/10/94	
Volatile Organics						
cis-1,2-Dichloroethene	NA	NA	ND)0.0002)	NA	ND (0.0002)	1
Trichloroethene	NA	NA	ND (0.0002)	NA	ND (0.0002)	1
Tetrachloroethene	NA	NA	ND (0.0002)	NA	ND (0.0002)	1
Semi-Volatile Organics						
bis (2-Ethyhexyl)phthalate	NA	ND (0.0012)	NA	NA	NA	100
Metals						
Lead	NA	ND (27.5)	NA	NA	NA	†
Total Petroleum Hydrocarbons	ND (1)	NA	NA	ND (1)	NA	10,000

NA - Not Analyzed
ND - Not Detected, value shown is the detection limit.
J - Mass spectral data indicates the presence of a compound that meets the identification criteria. The result is less than the specified quantitation limit but greater than zero. The concentration given is an approximate value.
B - The analyte was found in the laboratory blank as well as the sample. This indicates possible laboratory contamination of the environmental sample.
NS - No cleanup criteria established.
† - The impact to groundwater values for inorganics will be developed based upon site specific chemical and physical parameters.
♦ - Non-published NJDEP Soil Cleanup Criteria.
- Above NJDEP Soil Cleanup Criteria for Impact to Groundwater.
N - The spiked sample recovery is not within control limits.
* - Duplicate analysis is not within control limits.
S - The reported value was determined by the Method of Standard Additions (MSA).
* - Estimated (biased high).
** - Sample re-analyzed by laboratory volume reduced 30 grams to 5 grams dried with 30 grams of granular Na_2SO_4.
D - Indicates duplicate sample of its counter-part field sample number.
Detection Limits are Shown in Parenthesis.

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TABLE 6

Correlation of Field Gas Chromatograph (GC) *and Laboratory Results* Stanley Tools - Newark, New Jersey

Sample No.	Date	Depth (ft)	Parameter (PPM)	Field GC	Lab Results
SS-2	8/1/94	6-6.5'	PERC TCE CIS-1,2	< 0.2 < 0.2 < 0.2	ND 0.025 ND
SP-9	7/26/94	6-6.5'	PERC TCE CIS-1,2	2.25 ND ND	7.8 ND ND
SP-9	7/26/94	11.5-12'	PERC TCE CIS-1,2	< 1.0 ND ND	0.0056 ND 0.098
SP-10	7/26/94	11.5-12'	PERC TCE CIS-1,2	< 0.1 ND ND	0.077 0.16 0.11
SP-11	7/26/94	6-6.5'	PERC TCE CIS-1,2	ND ND ND	0.072 0.0052 ND
SP-11	7/26/94	11.5-12'	PERC TCE CIS-1,2	ND ND ND	0.041 0.004 ND
SP-14	7/27/94	6-6.5'	PERC TCE CIS-1,2	1.25 ND ND	1.7 ND ND
SP-15	7/27/94	11.5-12'	PERC TCE CIS-1,2	ND ND ND	0.0042 ND ND
SP-22	8/1/94	6-6.5'	PERC TCE CIS-1,2	1.8 < 0.1 ND	6 ND ND
SP-22	8/1/94	11.5-12'	PERC TCE CIS-1,2	< 0.5 < 0.2 ND	0.15 0.012 0.015
SP-23	8/1/94	6-6.5'	PERC TCE CIS-1,2	2.1 0.8 ND	1.7 ND ND
SP-23	8/1/94	11.5-12'	PERC TCE CIS-1,2	0.5 < 0.2 ND	0.14 0.0041 0.0083

TABLE 6
CON'T

Correlation of Field Gas Chromatograph (GC) and Laboratory Results Stanley Tools - Newark, New Jersey

Sample No.	Date	Depth (ft)	Parameter (PPM)	Field GC	Lab Results
SP-24	8/3/94	6-6.5'	PERC TCE CIS-1,2	< 0.2 < 0.2 < 0.2	0.026 ND 0.0034
SP-30	8/4/94	6-6.5'	PERC TCE CIS-1,2	< 0.2 < 0.2 < 0.2	0.016 ND 0.0034
CLAYPIPE	8/1/94	INTERIOR	PERC TCE CIS-1,2	> 100 ND ND	14,000 ND ND

COMMETS:
PERC - Tetrahloroethene
TCE - Trichloroethene
CIS-1,2 - CIS-1,2 Dichlorethene
ND - Not Detected
< - Less than.....
> - Greather than....
• Results are expressed in Parts Per Milliion (PPM)

State of New Jersey

Department of Environmental Protection

James E. McGreevey
Governor

Bradley M. Ca
Commissio

FASCIMILE COVER SHEET

TO Elizabeth Butler, USEPA

FAX NUMBER (212) 637-4439

DATE 2/4/04 NUMBER OF PAGES 27 (INC COVER)

FROM Robert P. Posey

BUREAU OF NORTHERN CASE MANAGEMENT

PHONE (609) 777-0899 FAX (609) 633-1454 – WEST WING

FAX (609) 777-4285

COMMENTS Copy of 8/24/99 BEE - Stanley Tools Site
copy of 4/3/100 NJDEP Approval Letter

Note - only sending BEE narrative, tables + 1 figure; there are additional figures + photos

State of New Jersey

Department of Environmental Protection

Christine Todd Whitman
Governor

Robert C. Shinn, Jr.
Commissioner

Ms. Jacqueline T. Wetzsteon
The Stanley Works
3810 S.E. Naef Road
Milwaukie, Oregon 97267-5698

APR 3 2000

RE: Stanley Tools, Inc. – Newark Facility
City of Newark, Essex County
ISRA Case No. E85178
1. Baseline Ecological Evaluation, Dated: August 24, 1999
2. Progress Report (April 1999 – September 1999), Dated: September 14, 1999

Dear Ms. Wetzsteon:

The New Jersey Department of Environmental Protection (**NJDEP**) has reviewed the above referenced reports submitted by ENSR on behalf of Stanley Tools. The August 24, 1999 Baseline Ecological Evaluation (**BEE**) identifies the potential ecological receptors, contaminants of ecological concern and contaminant pathways at the former Stanley Tools site. The September 14, 1999 Progress Report presents a summary of the activities conducted at the former Stanley Tools Newark site from April 1999 to September 1999.

Referenced below are the NJDEP's comments regarding the referenced reports.

A. **<u>August 24, 1999 Baseline Ecological Evaluation</u>**

Stanley Tools states that due to the isolation of the impacted soils from contact with ecological resources via direct contact or surface water runoff through capping of all open spaces at the site, the only media of concern is ground water.

Stanley Tools identified the Passaic River as the major off-site ecological habitat in the area of the former Newark facility. Stanley Tools also stated that there are no true terrestrial vegetative habitats or ecological resources present on or adjacent to the site. Stanley Tool states that the Passaic River is located at its closest point to the former Stanley Tools Newark Facility approximately 400 feet (western parcel). However, because the site is located on the inside of a large meander bend along the Passaic River, the river is located approximately 1,200 feet from the downgradient boundary of the site. Stanley Tools also states that surface runoff either discharges to the site storm sewer located in the northeast corner of the site or to drains located in the bordering streets. Stanley Tools states that no natural or man-made surface water drainage channels or conveyances exist on or adjacent to the site. The lower Passaic River near the site is a tidal estuary and is classified as Class-SE-3. Designated uses of Class-SE-3 waters are secondary contact recreation, maintenance and migration of fish populations, migration of anadromous fish populations, maintenance of wildlife and any other reasonable use.

No environmentally sensitive areas were identified on-site; however, Stanley Tools identified two environmentally sensitive areas in the vicinity of the site. Stanley Tools identified Surface Water (Passaic River) and Finfish Migratory Pathways as the two environmentally sensitive areas in the vicinity of the site.

Stanley Tools identified Benzene, Toluene and Xylene as Contaminants of Potential Ecological Concern (**COPEC**) for the western parcel of the site. Tetrachloroethene (**PCE**), Trichloroethene (**TCE**), cis-1,2Dichloroethene (**DCE**) and Vinyl Chloride were identified as COPECs for the eastern parcel of the site.

Two distinct Classification Exception Areas (**CEAs**) were established at the site in 1998. The western parcel CEA addresses the TPH contaminant plume in site ground water. The eastern parcel CEA addresses the elevated Volatile Organic Compounds (**VOCs**) in ground water.

Based on ground water modeling used for the development of the CEAs at the site, Stanley Tools determined that the COPECs will degrade naturally over time to concentrations below the NJDEP's Ground Water Quality Standards (N.J.A.C. 7:9-6) prior to reaching the Passaic River. In addition, Stanley Tools states that the current ground water remediation system operating on the western parcel controls the migration of the contaminant plume on this portion of the site.

Stanley Tools states that asphalt paving, and buildings covering the site prevent direct contact or migration of COPECs due to surface water runoff or erosion.

Stanley Tools states that because no complete exposure pathways exist between the site and the Passaic River, no ecological risk is posed by the site to ecological resources or environmentally sensitive areas. Stanley Tools states that a comprehensive ecological investigation is not warranted at the site.

NJDEP's Requirements:

The conclusions and proposal that a comprehensive ecological investigation is not warranted within the BEE are acceptable.

B. <u>**September 14, 1999 Progress Report**</u>

The progress report is acceptable. The QA/QC Laboratory Deliverables submitted with the progress report are acceptable. The NJDEP does not have any additional comments at this time.

C. **Additional Requirement**

1. Stanley Tools shall submit an updated Remedial Action Schedule that identifies the remaining remedial activities at the site. The updated Remedial Action Schedule shall include the projected dates for all reports to be submitted for the NJDEP's review. The Remedial Action Schedule shall be submitted within fifteen calendar days of receipt of this letter.

2. Stanley Tools only submitted one copy of the September 14, 1999 Progress Report for the NJDEP's review. Stanley Tools shall submit one additional copy of the September 14, 1999 Progress Report for the NJDEP's files. The QA/QC Laboratory Deliverables do not have to be re-submitted.

If you have any questions regarding this letter please contact ISRA Case Manager, Joseph Ludovico at (609) 633-1423.

Sincerely,

Joseph J. Novak

Michael A. Justiniano, Supervisor fr
Bureau of Environmental Evaluation,
Cleanup and Responsibility Assessment

C: Joseph Marchesani, NJDEP/BGWPA
Chris Lacy, NJDEP/BEERA
Michael Festa, Essex County Department of Health
Andrew Kolesar, Thompson Hine & Flory
Stuart Brownstein, Ramida Rest Brown, Inc.
Richard Konkowski, ENSR

ENSR

Letter of Transmittal

RECEIVED AUG 26 1999

ATTENTION:

Mr. Joseph Ludovico
New Jersey Department of Environmental Protection
Division of Responsible Party Site Remediation
401 East State Street
Trenton, New Jersey 08625-0028

DATE:

8/24/99

PROJECT REFERENCE:

The Stanley Works ISRA Remediation
140 Chapel Street, Newark, NJ
(ISRA Case No. 85178)

PROJECT NUMBER:

6303-111-12B

WE ARE SENDING YOU THE FOLLOWING:

Number of Originals	Number of Copies	Description
1	2	Baseline Ecological Evaluation Baseline Ecological Evaluation of the former Stanley Tools' Facility at 140 Chapel Street, Newark, New Jersey (ISRA Case No. 85178)

REMARKS:

As requested in NJDEP's letter dated June 24, 1999, enclosed please find three copies of the Baseline Ecological Evaluation of the former Stanley Tools' Facility at 140 Chapel Street, Newark, New Jersey (ISRA Case No. 85178). Please call with any questions or comments.

SIGNATURE:

Kathleen Whooley

Kathleen Whooley
Senior Project Specialist

cc: Jackie Wetzsteon/Stanley Works
Andrew Kolesar, Esq./Thompson, Hine & Flory
R. Konkowski/ENSR
D. Mitchell/ENSR
File 6303-111-7.3.1

281 Centennial Avenue
Piscataway, New Jersey 08854
(732) 457-0500

R:\COMMON\6303-111\BEE\KW-JL082499Trs.doc

The Stanley Works

New Britain, Connecticutt

Baseline Ecological Evaluation of the former Stanley Tools' Facility at 140 Chapel Street, Newark, New Jersey

(ISRA Case No. 85178)

ENSR Consulting * Engineering * Remediation

August 1999

Document Number 6303-111-12B

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1.0 INTRODUCTION

A Baseline Ecological Evaluation (BEE) was conducted at the Former Stanley Tools, Inc. Newark Facility (ISRA Case No. E85178) located at 140 Chapel Street, in the City of Newark, Essex County, New Jersey (the Site). The BEE was conducted according to the New Jersey Department of Environmental Protection (NJDEP) Site Remediation Program's Technical Requirements for Site Remediation (N.J.A.C 7:26E). The Technical Requirements stipulate that a BEE should be conducted at sites undergoing remediation to evaluate potential adverse impacts to protected New Jersey natural resources. The Newark Facility BEE also complies with a written request by NJDEP (letter to Ms. Jacqueline Wetzsteon dated June 24, 1999).

A BEE (N.J.A.C. 7:26E 3-11) is part of the tiered approach to ecological risk assessment and is typically conducted during the initial investigation phase for all sites by qualified individuals, using qualitative screening techniques. The results of the BEE are documented in the Site Investigation Report and used to evaluate whether a more comprehensive ecological assessment under N.J.A.C. 7:26E-4.7 is required, or whether no further action is warranted (NJDEP, 1997). The Newark Facility BEE includes an identification of ecological resources at the Site and its vicinity, assessment of contaminants of potential ecological concern (COPEC), consideration of potential ecological exposure pathways, and a summary of findings and recommendations.

2.0 CHARACTERIZATION OF ECOLOGICAL RESOURCES AND RECEPTORS AT THE NEWARK FACILITY

This section characterizes the ecological resources and receptors at or in the vicinity of the Newark Facility. Section 2.1 gives a general site description and evaluates potential on-site habitat and ecological receptors found in the vicinity. Section 2.2 describes the major ecological resource (the Passaic River) in the vicinity of the Site. Section 2.3 identifies the designated state natural resources of interest (also known as environmentally sensitive areas) at or in the vicinity of the site. Section 2.4 describes the status of protected species (i.e., threatened/endangered species) in the area.

2.1 Evaluation of On-Site Habitat

2.1.1 General Site Description

The former Stanley Tools' facility is located at 140 Chapel Street in Newark, Essex County, New Jersey. The United States Geological Survey (USGS) map depicted in Figure 1 shows the general site location. The facility is located in a heavily industrialized area in the Ironbound Section of the City of Newark that is interspersed by some limited residential areas along Chapel Street. The approximate 6-acre site is divided into two parcels by Chapel Street (see Figure 2). The larger portion of the site (i.e., the "Eastern Parcel") is approximately 4.3 acres and is bounded to the east by inactive Central New Jersey Railroad (CNJRR) tracks, to the north by Lister Avenue, to the west by Chapel Street, and to south by Albert Street (see Appendix A). The smaller "Western Parcel" (approximately 1.7 acres) is bounded by Chapel Street to the east and by industrial properties on all sides except the northwest where CNJRR tracks forms the boundary (see Appendix A).

The former Stanley Tools' facility manufactured a variety of metal tools (e.g., hammers, sledge, mauls, and wedges) until site closure in 1985. Since that date, Stanley has been conducting investigations at the facility pursuant to the Environmental Cleanup and Responsibility Act (ECRA), and more recently, the Industrial Site Recovery Act (ISRA). The site has undergone extensive remedial activities under ECRA/ISRA, including: groundwater monitoring and remediation, soil sampling and excavation, soil treatment, installation of an asphalt cap, polychlorinated biphenyl (PCB) equipment decommissioning, asbestos removal and building demolition (several site structures have been removed under oversight from the NJDEP ISRA program). The site was purchased by Ramida Rest Brown, Inc, in December 1997. Currently, the remaining buildings on the Eastern Parcel are occupied by one or more trucking firms. The Western Parcel is used for container storage.

General site and regional topography is depicted on the Elizabeth and Jersey City, United State Geological Survey (USGS) topographic quadrangles that show the site location, a portion of which is presented in Figure 1. In general, the ground surface elevation on the western parcel is relatively level and varies between 7.5 and 12.5 feet above mean sea level and slopes gently toward the stormwater catchbasin in the center of the parcel. The ground surface elevation on the eastern parcel varies between 9.5 and 13.5 feet. Based on site topography on the eastern parcel, natural surface drainage patterns for the site indicate that the general surface water flow direction is away from the facility buildings toward the corner of Chapel Street and Albert Avenue on the southwest portion of the parcel; and to the northwest toward Lister Avenue on the northern side of the facility buildings; and to the east-northeast toward Lister Avenue at the rear of the eastern parcel.

With the exception of a tiny maintained lawn by the comer of Lister Avenue and Chapel Street, the interior (i.e., within the protective fenceline) of both parcels is completely developed (see below for description). No natural or man-made surface water drainage channels or conveyances exist on or adjacent to the site. Surface runoff from the building and asphalted parking areas drains either to on-site storm drains (e.g., located in the northeast comer) or drain to those located in the bordering streets. Although the property does not extend to the shoreline of the Passaic River, the Westem Parcel is situated within approximately 400 feet of the Passaic River at its closest point to the river. However, the site drainage slopes away from the Passaic River. As a result, the Passaic River is 1,200-feet in the downgradient direction from the site.

This site has an NJDEP-approved Classification Exception Area (CEA) for selected constituents in the groundwater underlying the site (NJDEP, 1998). Under N.J.A.C. 7:9-6.6(d), a CEA may be established for a site with an NJDEP-approved groundwater pollution remedy. CEAs are established in order to provide notice that the constituent standards for a given aquifer classification are not or will not be met in a localized area due to natural water quality or anthropogenic influences, and the aquifer uses are suspended in the affected area for the term of the CEA. Additional information on the CEAs for the site was previously provided to the NJDEP in Appendix A "Documentation in Support of Establishment of Classification Areas" in ENSR's 1997 response to NJDEP letter dated June 27, 1997. (ENSR, 1997).

2.1.2 On-Site Habitat

As part of a BEE, the general ecological habitat, vegetative cover types, and plant and wildlife species typically found at or near the project site are characterized. For the Newark facility, this information was gathered through a site inspection (8/10/99), review of site maps and documents, consultation with relevant state and federal agencies (see Section 2.4), and general observations. Some of this data has been previously presented (e.g., <u>Remedial Action Workplan Addendum – Eastem Parcel</u> (ENSR, 1998); other site documents).

A site reconnaissance was conducted on August 10, 1999 by a qualified ecologist (Dr. David F. Mitchell) to evaluate the potential ecological habitat and resources on or in the vicinity of the Newark facility. During the reconnaissance, both parcels were visually inspected and photodocumented, observations on ecological resources at the site, and in the vicinity were made, and potential exposure pathways investigated. No significant terrestrial habitats were identified within the immediate vicinity of the site, which is comprised of either industrial or commercial properties (e.g., paint industry, trucking firms, warehousing, etc) with interspersed pockets of residential development. In the site vicinity, vegetation exists as maintained lawns or as opportunistic weed and shrubs along fencelines or on demolished building sites. These limited patches of vegetation provide very poor function as either foraging or refuge areas for local wildlife. The ecological habitats and resources for each of the two parcels are further discussed below.

Eastern Parcel

No true terrestrial vegetative habitats or ecological resources exist at the Eastern Parcel (see representative photos in Appendix A). The entire site is developed within the protective fenceline and covered either by buildings or asphalt pavement. [Note: all open areas on both parcels have been capped with asphalt to prevent direct human contact with remaining potentially contaminated soils and to prevent infiltration of precipitation of surface water. This reduces the potential for further groundwater contamination from the impacted soils remaining above the water table (Remedial Action Report for The Stanley Tools Facility (ENSR, 1995).] Marginal vegetation exists as an approximate 5-foot wide strip of vegetated soil outside the facility fenceline and portions of Albert Street. Wildlife expected to persist on-site, if any, would be either nuisance species or those adapted to occupation of man-made structures (e.g., pigeons *(Columba spp.)* or Norway rat (*Rattus norvegicus*).

Western Parcel

No terrestrial vegetative habitats or ecological resources exist at the Western Parcel (see representative photos in Appendix A). No buildings remain on this parcel, which is entirely paved and fenced. The site is mostly occupied by stacked empty trucking containers (for sea-land shipping), associated steel stacking platforms, and truck trailers. There was no vegetation observed on-site except for limited shrubs and plants along fencelines. No wildlife was observed on-site except for unidentified bird species in the fenceline area. Adjacent areas do not provide significant terrestrial ecological habitat.

In summary, no ecological habitats or resources exist on either of the Eastern and Western parcels of the Newark Facility. Due to the lack of ecological habitat on both parcels, there were no observations of stressed or dead vegetation; discolored soil, sediment, or water; or unusual absence of wildlife; or the presence of a seep or discharge not previously identified as part of the stormwater system.

Further, there are no significant ecological resources in the immediate site vicinity, with the exception of the Passaic River located approximately 400 feet of the Western Parcel (at its closest point) which is discussed further below.

2.2 Passaic River

The major off-site ecological habitat identified in the immediate vicinity of the former Stanley Tools' Newark facility is the Passaic River. The Passaic River forms the northern boundary of the so-called Ironbound Section of Newark. The river is located to the northwest and west of the Western and Eastern Parcels, respectively. The lower Passaic River near the site is a tidal estuary and is classified as Class SE-3 [Note: the SE class is the general surface water classification applied to saline waters of estuaries.] Designated uses for Class SE-3 are secondary contact recreation, maintenance and migration of fish populations, migrations of anadromous fish, maintenance of wildlife and any other reasonable uses.

Water quality in the lower Passaic River Basin is considered poor and heavily impacted due to effluent from New Jersey permitted point pollution discharges, combined sewer overflow, non-point sources, contaminated sediments, and habitat alteration (US ACOE, 1987). The lower six miles of the Passaic River are currently being investigated by the EPA as part of the Diamond Alkali Superfund Site investigation (US EPA, 1996).

Aquatic life found in the lower Passaic River include water column receptors such as fish as well as benthic (i.e., bottom-dwelling) organisms. Typical fish species found in the lower Passaic River include striped bass (*Morone saxatilis*), white perch (*Morone americana*),) American shad (*Alosa sapidissima*), carp (*Cyprinus carpio*), alewife (*Alosa psuedoharengus*), blueback herring (*Alosa aestivalis*), Atlantic silversides (*Menida menidia*), and mummichog (*Fundulus heteroclitus*). A list of fish reported in the lower Passaic River by the US ACOE (1987) is given in Table 1. The benthic community is comprised of pollution-tolerant species including chiromid midge larvae, tubificid worms, nematodes, and polychaete worms as well as crab species (e.g., blue crab, *Callinectes sapidus*) (USACOE, 1987). The Passaic River may also provide habitat or migratory stop over areas for waterfowl including mallard duck (*Anas platyrhynchos*), black duck (*Anas rubripes*), redhead (*Aythya americana*), bufflehead (*Bucephala albeola*), and canvasback (*Aythya valisineria*) ducks (2B, Inc., 1997).

2.3 Environmentally Sensitive Areas

Environmental sensitive areas (ESAs) are designated natural resources that have been mapped, delineated, listed, managed, maintained, or protected pursuant to local, state, or federal statute, order, or regulation. According to the NJDEP guidance, designated natural resources at the site can be identified according to the NJDEP classification of Environmentally Sensitive Areas (N.J.A.C. 7:1E-1.8). Information regarding ESAs was obtained from the habitat characterization, as well as from communication with NJDEP personnel (e.g. Division of Fish, Game, and Wildlife, Bureau of Fisheries, Division of Parks and Forestry, and the Division of Natural Lands Management).

A review of potential ESAs was made for the vicinity of the former Stanley Tools Newark Facility. Table 2 presents a summary of NJDEP-designated environmentally sensitive areas and their presence or absence at the Newark Facility. No ESAs are present at the former Stanley Tools' site; however, there are two categories of ESAs known to occur in the site vicinity: Surface Waters (Passaic River) and Finfish Migratory Pathways. The following ESAs were not identified as present at the site or in the immediate site vicinity: Sources of Water Supply; Bay Islands and Barrier Island Corridors; Beaches; Dunes; Wetlands and Wetlands Transition Areas; Breeding Areas; Migratory Stopover Areas; Wintering Areas; Prime Fishing Areas; Estuarine Areas; Shellfish Harvesting Waters; Forest Areas; Federal and State Listed Rare Species; Federal and State Wilderness Areas; and Federal and State Wild and Scenic Rivers.

Further information is provided below for Surface Waters and Finfish Migratory Pathways that are mapped for the Passaic River approximately 1,200-feet downgradient of the site. A discussion of non-applicability of Sources of Water Supply; Wetlands and Wetland Transition Areas; Breeding Areas; Migratory Stopover Areas; Wintering Areas; Prime Fishing Areas; and Federal and State Listed Rare Species is also provided below.

2.3.1 Surface Waters

As shown on the USGS topographic map (Figure 1), the study area is designated as within the Passaic River Drainage Basin. No surface waters have been identified on or immediately adjacent to the site. Major surface waters in the vicinity of the site include the tidal Passaic and Hackensack Rivers. As shown on the USGS topographic map, the former Stanley Tools' facility is situated on the inside of a large meander bend along the Passaic River within 400-feet of the river. The river flows in an easterly direction north of the site, then turns in a southerly direction to the east of the site. The Passaic River is located approximately 1,200-feet from the downgradient boundary of the former Stanley Tools' site. The Hackensack River is greater than one mile east of the site.

The Passaic River in the Newark area is classified at N.J.A.C. 7:9B as saline estuarine waters (SE-3). Based on a discussion with the City of Newark Engineering Department, the portion of the former Stanley Tools' facility located on the east side of Chapel Street is within the 500-year flood plain, and the portion located on the west side of Chapel Street is within the 100-year floodplain of the Passaic River.

2.3.2 Sources of Water Supply

Based on information contained in the approved CEA documentation, neither groundwater nor surface water (i. e., Passaic River) supply drinking water at the site or in the vicinity (ENSR, 1997; 2E, Inc, 1997). With the establishment of an approved CEA for the site, aquifer use for drinking water is suspended for the duration of the CEA. Thus, no related ESAs were identified for this category.

2.3.3 Wetlands and Wetland Transition Areas

No freshwater wetlands are located on or in the immediate site vicinity. Based on a review of the National Wetlands Inventory (NWI) Map for the Elizabeth, New Jersey Quadrangle, the closest mapped wetland area is the Passaic River which is designated as an Estuarine Subtidal Open Waterbody (E1OW) on the NWI map. The closest Freshwater Wetland mapped by the NJDEP Geographic Information System (GIS) is situated approximately 1,000 feet north of the site on the opposite bank of the Passaic River. There are no significant wetlands resources mapped in the site vicinity for this ESA.

2.3.4 Breeding Areas

Breeding areas for forest area nesting species include large tracts of contiguous forest with populations of one or more of neotropical migrant species. Breeding areas for colonial waterbirds are areas occupied by one or more of fifteen species of colonially nesting birds. Breeding areas for aquatic fur-bearers include those areas which provide food, water or cover, or sites to rear young, for otter, muskrat, beaver, or mink. The nearby Passaic River may be suitable for limited nesting by common waterfowl species and suitable for use by aquatic furbearers; however, the subject property lies within a heavily populated industrial and commercial/residential area of the City of Newark, and there are no large, contiguous tracts of forested areas on or in the immediate vicinity of the site. Based on previous project experience in this area, no significant breeding areas are known to exist in the vicinity of the former Stanley Tools' facility. Therefore, there is no significant resource for this ESA in the project area.

2.3.5 Migratory Stopover Areas

Migratory stopover areas for migrant shorebirds, raptors, or passerines include all beaches and tidal marsh habitats along the Delaware Bay and Atlantic Coast from Cap May Point north to the Cohansey River and Cape May Point north to Sea Isle City. The site is outside of this geographical area. Portions of the Passaic River may be used as migratory stopover areas for these species; however, the available resources are limited due to the highly industrial/commercial developed nature of the Newark area. Therefore, there is no significant resource in the project area for this ESA.

2.3.6 Wintering Areas

Per NJAC 7:1E-1.8(a)9, Wintering Areas, include coastal tidal marshes and water areas, waterfowl concentration areas, and Atlantic white cedar stands. Specifically, they include coastal tidal marshes and water areas, (sounds, bays, rivers) from Raritan Bay South to Cape May and from Cape May North to Rancocas; waterfowl concentrations areas, which include all water areas (streams, ponds, lakes), estates, municipal and county parks, corporate lands, and Fort Dix; and Atlantic cedar stands. The Passaic River may be used by common waterfowl species and as a corridor for movement by neotropical migrant birds; however, there are no stands of Atlantic white cedar or waterfowl concentration areas in the site vicinity. Therefore, no significant resource is known to exist in the site vicinity for this ESA.

2.3.7 Prime Fishing Areas

Prime fishing areas are those tidal or water's edge areas with a significant history of local fishing use. There are two county parks in the city of Newark (Branch Brook Park Pond and Weequaic Park Lake). These public parks offer fair to good fishing quality for largemouth bass, catfish, channel fish, and sunfish; however, these parks are not situated in the vicinity of the site. There are no documented public parks that offer a significant resource for public boating and fishing access along the Passaic River in the Ironbound Section of Newark downgradient of the site. Therefore, no significant resource exists in the site vicinity for this ESA.

2.3.8 Finfish Migratory Pathways

Finfish migratory pathways are waterways (rivers, creaks, bays, inlets) serving as passages for diadromous fish to and from seasonal spawning areas, including juvenile anadromous fish which migrate in Autumn and those listed by H.E. Zich (1978)"New Jersey Anadromous Fish Inventory," NJDEP Miscellaneous Report No. 41. The Passaic River is reported to support anadromous clupeid spawning runs. According to the New Jersey Anadromous Fish Inventory, blueback herring (*Alosa aestivalis*) was confirmed in the Third River at the Route 3 Dam several miles upstream from the site. American shad (*Alosa sapidissima*) and alewife (*Alosa psuedoharengus)* were also listed as fish reported in the lower Passaic River by the US ACOE (1987).

2.3.9 Shellfish Harvesting Areas

According to NJAC 7:7E-3.2, shell fish habitat is defined as an estuarine bay or river bottom which has a history of production for hard clams, soft clams, eastern oysters, bay scallops or blue mussels. Based on a review of the State of New Jersey Shellfish Growing Water Classification Charts, all areas upstream of the Arthur Kill are condemned and closed to the harvest of clams, mussels or oysters. Therefore, no significant resource exists in the vicinity of the site for this ESA. The taking, harvesting or eating of blue crabs from the Newark Bay Complex, including the Passaic River downstream of Dundee Dam, is restricted due to NJDEP health advisories based on PCB, dioxins, and/or chlordane contamination.

2.4 Rare, Threatened, and Endangered Species Determination

As part of the evaluation of the site, threatened and endangered species and/or species of special concern were identified. ENSR contacted the New Jersey Natural Heritage Program regarding the presence of state- or federally-listed threatened or endangered species in the project area. ENSR also reviewed the habitat requirements for documented species listed for Essex County and the potential presence of similar habitat on-site supportive of these species. The site is almost entirely covered by buildings and/or pavement. The surrounding area is heavily industrialized. As a result, no natural areas which would be considered to be supportive of documented species is present on or immediately adjacent to the site. No sensitive natural habitats or threatened, endangered and rare species are known to exist in the vicinity of the site. The NJDEP Natural Heritage Program confirmed the absence of documented species and/or special habitats on the site.

3.0 CONTAMINANTS OF POTENTIAL ECOLOGICAL CONCERN (COPEC)

Contaminants of potential ecological concern (COPECs) were identified from review of site documents (ENSR, 1997; ENSR, 1998). Due to the isolation of the impacted soil from contact with ecological resources via direct contact or surfacewater runoff through capping of all open spaces of the parcels, the only media of concern is groundwater.

Investigative work conducted at the site (for review of site investigation activities see ENSR, 1998) found that various constituents in the groundwater exceeded the New Jersey Ground Water Quality Standards (NJGWQS). Monitored constituents that have been detected on one or more occasion at concentrations above the NJGWQS include: volatile organics, metals, pesticides, base/neutrals and total petroleum hydrocarbons. Many of the volatile organics, and most of the metals are among the 22 so-called "pervasive compounds" with widespread distribution within the Ironbound Section. These 22 pervasive compounds have been identified in a petition to reclassify the groundwater in the area.

Many of the metals and other compounds have been detected in isolated "hot spots" scattered throughout the site (ENSR, 1997). Focus was made on those COPECs that were more likely to migrate off-site in defined groundwater plumes and pose a concern regarding the potential discharge to the Passaic River at concentrations exceeding the NJGWQS. Based on this approach, the following key compounds were selected as candidate COPECs: benzene, toluene, xylene (for the Western Parcel), and tetrachloroethene (PCE), trichloroethene (TCE), cis-1,2dichloroethene (DCE), and vinyl chloride (for the Eastern Parcel), which are discussed in Section 4.0.

4.0 POTENTIAL CONTAMINANT MIGRATION PATHWAYS TO ESAs

There are two categories of ESAs identified in the vicinity of the Newark facility. The major ESAs identified were Surface Waters, namely the Passaic River, and Finfish Migratory Pathways. Potential contaminant migration pathways from the Newark facility were evaluated, including: migration due to surface water runoff and soil erosion, migration due to soil dust or atmospheric deposition, and groundwater discharge to surface waters and underlying sediments in the Passaic River. The Eastern and Western Parcels are covered with either buildings or pavement (with the exception of minor lawn area on Chapel Street). This impervious cover isolates the impacted soil and prevents either surface runoff and/or soil erosion of soil-associated COPECs from occurring. Surface water runoff will drain to storm drains on or adjacent to the site, but will not transport COPECs from the site. Thus, this is not a complete migration pathway.

Potential groundwater migration from the site was addressed by consideration of the information and groundwater models generated as part of establishing CEAs for the two parcels (ENSR, 1997). The groundwater model used was the Chain_2D Model. This model (originally developed by the U.S. Department of Agriculture) incorporates all the basic transport processes (advection, dispersion, sorption) as well as the transformations including generation of various daughter products. This model was used to estimate the areal extent of the chlorinated VOC and petroleum hydrocarbon plumes that constitute the CEA boundaries for both the Western and the Eastern Parcels.

Modeling data indicates that the COPECs will degrade naturally over time to concentrations below the NJGWQS prior to a potential discharge to the Passaic River. During the estimated duration of the CEAs, the COPECs are not expected to migrate beyond the mapped areas. For the Eastern Parcel, the model predicts that the maximum extent of the chlorinated VOC plume will be approximately 500-feet from the Passaic River (along the projected northeastern downgradient flow path). Therefore the degradation of products of the plume are not expected to discharge to the Passaic River (Appendix C, "Petition for Variance from Technical Requirements for Site Remediation," ENSR, 1998). For the Western Parcel, movement of the groundwater is less predictable due to very small groundwater elevation differences that have historically resulted in inconsistencies in groundwater flow direction. Groundwater models have been generated for the Western Parcel, but none indicate the potential risk of discharge to the river (ENSR, 1997). NJDEP has accepted the CEAs for both the Eastern and Western Parcels (NJDEP, 1998). Currently, hydraulic control of groundwater has been established by remedial measures undertaken on the Western Parcel that will continue until the area has been remediated to NJDEP-acceptable levels. Therefore, it can be concluded that potential groundwater migration from the former Stanley Tools' facility does not constitute a complete exposure pathway to ecological receptors in the Passaic River.

No complete exposure pathways exist between COPECs in the soil or groundwater at the former Stanley Tools' Newark facility site and ecological receptors in the Passaic River. Asphalt pavement covering the remaining impacted soils prevent direct contact or migration of COPECs due to surface water runoff or erosion. Groundwater modeling to establish CEAs for the site demonstrate that groundwater COPECs will degrade to negligible levels well short, (i.e., greater than 500-feet) of discharge to the Passaic River. As no complete exposure pathways exist between the site and the Passaic River, no ecological risk is posed by the site to ecological resources or ESAs.

5.0 RECOMMENDATIONS AND CONCLUSIONS

A BEE was conducted for the former Stanley Tools' Newark facility to estimate the potential for ecological risk posed by site-related COPECs and to evaluate the need for additional risk investigation. NJDEP (1997) recommends that comprehensive ecological assessments are required as part of continued remedial investigations whenever a baseline ecological assessment indicates that: (1) contaminants of ecological concern exist on-site (i.e., constituents that bioaccumulate); (2) a "designated natural resource" exists on or adjacent to the site" and (3) potential contaminant migration pathways to a "designated natural resource" exist or impacts to a "designated natural resource" is apparent through observation.

The BEE for the Newark facility identified COPECs in the site groundwater and identified ESAs (surface waters, finfish migratory pathways) in the site vicinity. However, evaluation of potential exposure pathways found no complete exposure pathways existed between site-related COPECs and the identified ecological resources (Passaic River). Due to the lack of exposure pathways, no ecological risk is posed. Therefore, a comprehensive ecological investigation is not warranted at this site.

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Table 1
Fish Species Collected in the Lower Passaic River (1980)
Former Stanley Tools' Facility, Newark, New Jersey

Common Name	Scientific Name
American Eel	*Anguilla rostrata*
Blueback Herring [1]	*Alosa aestivalis*
Alewife[1]	*Alosa pseudoharengus*
American Shad [2]	*Alosa sapidissima*
Gizzard Shad	*Dorosoma cepedianum*
Bay Anchovy	*Anchoa mitchilli*
Rainbow Smelt	*Osmerus mordax*
Goldfish	*Carassius auratus*
Carp	*Cyprinus carpio*
White Sucker	*Catostomus commersoni*
Brown Bullhead	*Ictalurus nebulosus*
Silver Hake	*Merluccius bilinearis*
Atlantic Tomcod	*Microgadus tomcod*
Red Hake	*Urophycis chuss*
Mummichog	*Fundulus heteroclitus*
Tidewater Silverside	*Menidia peninsulae*
Atlantic Silverside	*Menidia menidia*
Threespine Stickleback	*Gasterosteus aculeatus*
Northern Pipefish	*Syngnathus fuscus*
White Perch	*Morone americana*
Striped Bass [1]	*Morone saxatilis*
Pumpkinseed	*Lepomis gibbosus*
Bluegill	*Lepomis macrochirus*
Largemouth Bass	*Micropterus salmoides*
Black Crappie	*Pomoxis nigromaculatus*

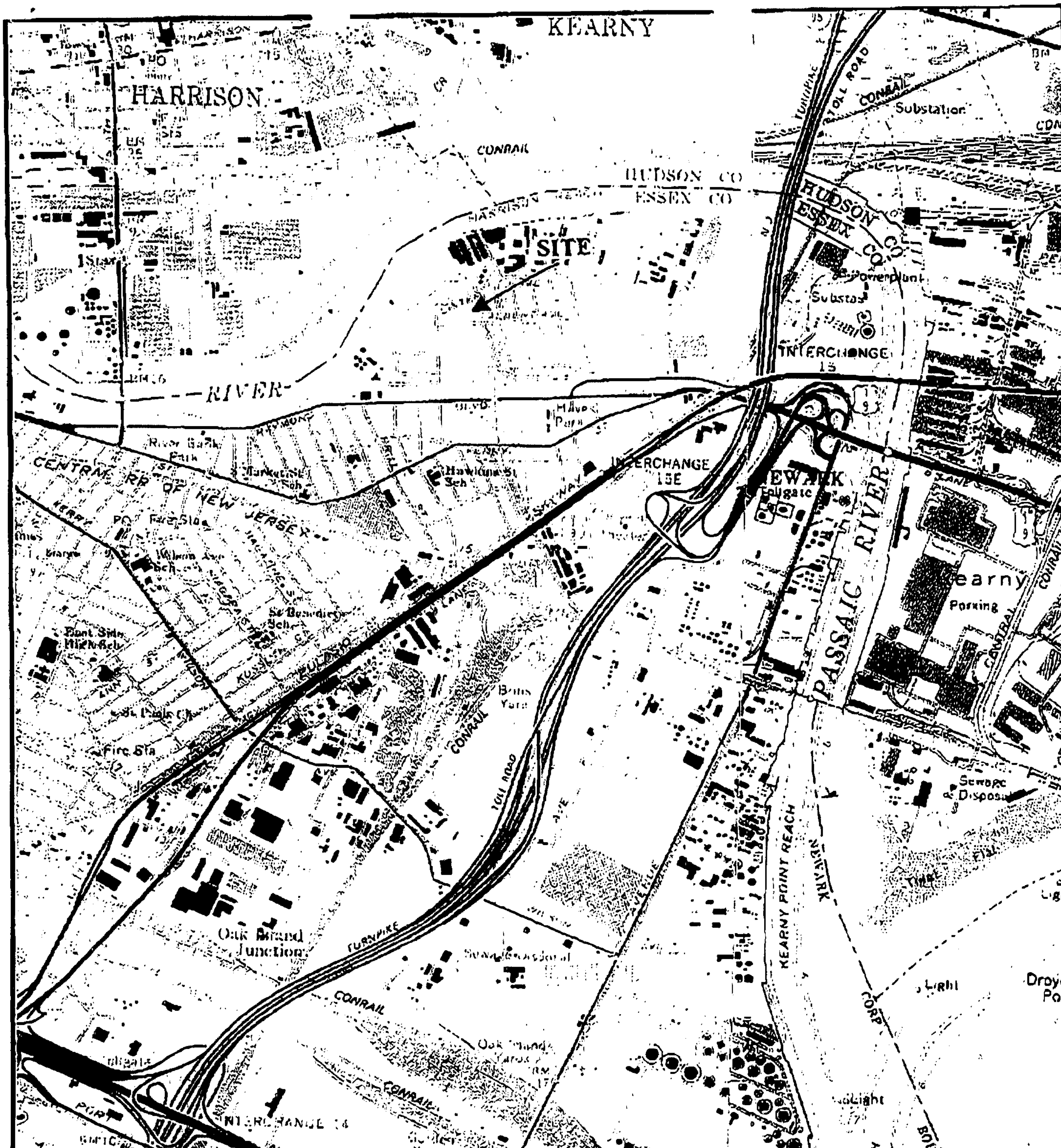
Notes:

1 Adults and juveniles.
2 Juveniles.
3 Sampling site was from the vicinity of the NJ Turnpike Bridge.

Source: US Army Corps of Engineers, 1987.

Table 2
Environmental Sensitive Areas On or Immediately Adjacent to the Site
Former Stanley Tools' Facility, Newark, New Jersey

Environmentally Sensitive Area (as per NJAC 7:1E-1.8)	Presence at Site or Immediately Adjacent to Site (Comments)
1. Surface waters (Passaic River)	Present within 1,200-feet downgradient of Site
2. Sources of water supply	Not present. No public water wells or water supply reservoirs are located on or adjacent to the site. There is a NJDEP-approved Classification Exception Area for the Site.
3. Bay islands and barrier island corridors	Not present.
4. Beaches	Not present.
5. Dunes	Not present.
6. Wetlands and wetland transition areas	Not present.
7. Breeding areas for forest area nesting species, colonial water birds or aquatic furbearers	Not present. There are no large, contiguous forest tracts on or adjacent to the site.
8. Migratory stopover areas for migrant shorebirds, raptors or passerines	Not present
9. Wintering areas (including coastal tidal marshes and water areas), waterfowl concentration areas and Atlantic white cedar stands	Not present. There are no waterbodies on or immediately adjacent to the site with the capacity to support any concentrations of waterfowl.
10. Prime fishing areas	Not present.
11. Finfish migratory pathways	Present
12. Estuarine areas	Not present.
13. Shellfish harvesting waters	Not present.
14. Forest areas (prime and unique forestland)	Not present
15. Federal and State-listed rare species	Not present. Confirmation has been requested from NJDEP Natural Heritage Program; however, no documented federal or state-listed species have been observed on-site and none are expected to exist in the site vicinity. The entire site is almost completely developed with buildings and/or paved.
16. Federal and State wilderness areas	Not present. No federal and state wilderness areas are known to occur in the vicinity of the site.
17. Federal and State Wild and Scenic Rivers	Not present . (As per Wild and Scenic River Systems, Jan. 1996)



SOURCE: USGS 7½ Minute Topographic Quadrangles, Elizabeth & Jersey City

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FIGURE 1
SITE LOCATION MAP
Stanley Tools - Newark, NJ

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